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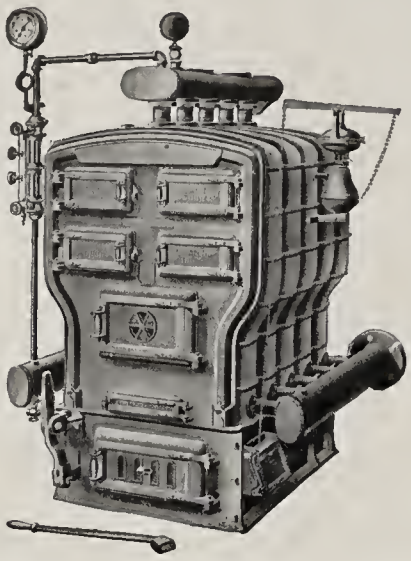

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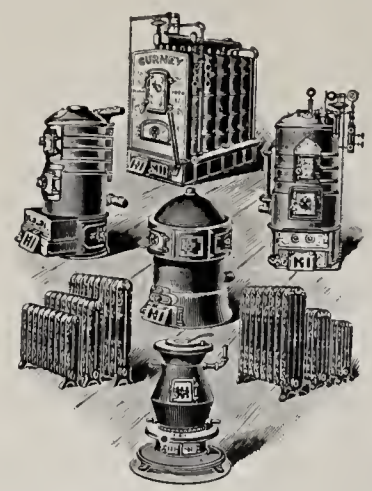

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DEALERS IN

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Light Fireproofing Material

For all classes of fireproof and semi-fireproof buildings.

Floors, Roofs, Partitions, Furring Tile, Etc.

Fireproof Plaster Boards
For wood construct on.

Write for prices and estimates.

THE Chamber of Commerce of Minneapolis installed the most complete and expensive Power and Heating plant in the state of Minnesota in their new building, and after exhaustive tests decided to cover same with

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W.S.NOTT CO.
200-206 1ST AVE. SO.
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TURTLE BACK ROOFING
A NATURAL COVERING
FOR ALL KINDS OF BUILDINGS

Carey's 85 per cent Pure Magnesia Pipe Covering

The Deere-Webber Co., the largest Implement dealers in the entire Northwest roofed their immense 8 Story Warehouse in this city, with

Carey's Magnesia Cement Roofing

the lightest, most servicable and least expensive first-class roofing now manufactured.

KEES & COLBURN, Architects of both Buildings.

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THE WESTERN ARCHITECT
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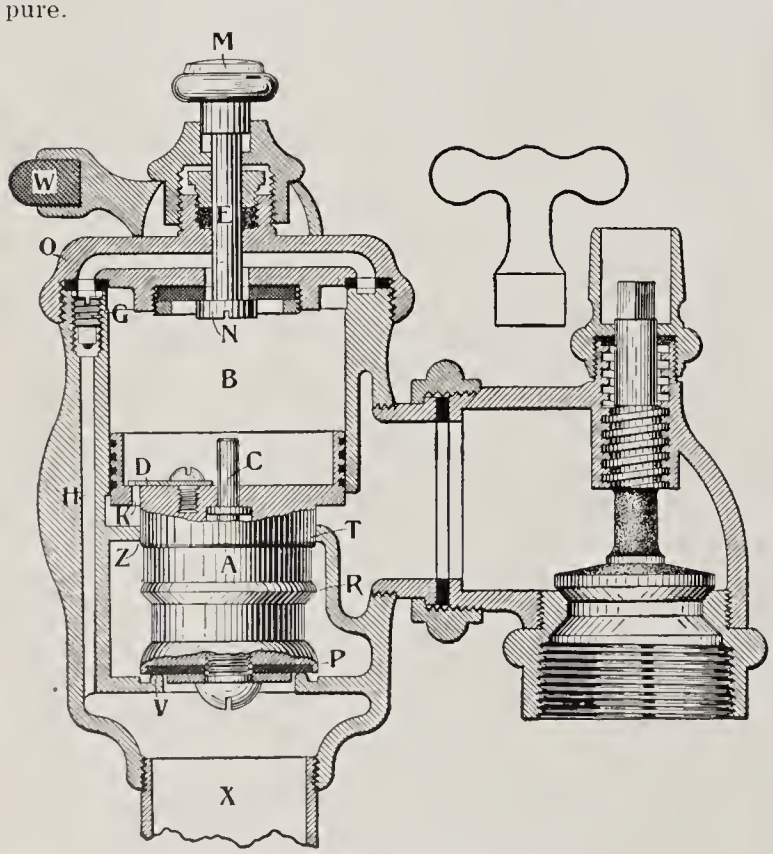
THE NETHERY HYDRAULIC FLUSH VALVE.

During the past ten years repeated attempts have been made to construct a Flush Valve which will eliminate the ordinary water closet tank, which has proven to be not only unsightly in appearance, but noisy in operation and imperfect in its mechanism, and in fact one of the most unsatisfactory problems that an architect has to handle. Some of these valves are giving fair satisfaction, but none of them appeal to us from a technical standpoint with as much force as the valve on this page.

It differs from the other Flush Valves on the market owing to the fact that it is both **opened** and **closed** and in fact—**held closed** by Hydraulic Pressure. It is also as simple in its mechanical construction as a valve could be made, there being but three pieces, namely, the cylinder, the cap and the piston, all constructed of No. 1 Bibb Metal 85 per cent pure.



SECTIONAL VIEW OF VALVE.

The valve is opened by pushing the push-button (M). The water contained in valve chamber (B) escapes through the cap (O) and down by-pass (H) in the valve casing into the discharge pipe (X). The rate of discharge through by-pass (H), regulated by the screw (G) regulates the rapidity of the rise of valve piston (A). Upon the rising of piston (A) to the top of valve chamber (B) the pin (C) closes the valve (N), whereupon the upper valve chamber (B) begins to refill through the opening (K) in piston head. The rapidity of the filling of the upper valve chamber (B) therefore the rapidity of descent of piston (A) and the quantity of water discharged at each operation of the valve is controlled by the disk (D). By this regulating disk practically any desired quantity of water up to fifteen or twenty gallons can be drawn at each operation of the valve. In the descent of piston (A) the closet flush is obtained while the piston area between piston ring (P) and piston ring (R) is passing the supply opening and the closet seal or refill is accomplished while the piston is passing opening from piston ring (R) to piston ring (T) at which point of its descent the base of piston has reached its seat (V) and flow ceases.

An important feature of the valve and a point not explained in sectional cut—is the way in which any possible wear of the piston caused through friction is prevented. Unlike other valves, the supply is not a direct communication between inlet and outlet. The space through which the water enters, the valve (above the letter T on sectional view) is too small to admit sufficient water to raise the piston—but this opening continues entirely around the valve—the cylinder being cast in hollow form, as a result of which the water presses inward and upward from all sides at once, holding the piston exactly in the center of the valve chamber and preventing the friction and wear on valve, such as would occur if the water entered from **one side only.**

One of these valves is in operation in the show room of the National Brass & Metal Co., Corner 3rd Ave. and 3rd St. South, Minneapolis. They show it in operation on seventy down to five pounds pressure without any re-adjustment of the valve. Under the highest pressure we found it to be perfectly noiseless.

SHOWING VALVE ATTACHED.

So great is their confidence in the valve that this company guarantee that it will give a perfect flush and refill at each push of the button, that it will absolutely prevent waste of water (as it cannot be propped open), also that it can be kept in perfect condition with less attention than any closet valve on the market.

Below is a list of installations or specified jobs, mostly in New York City, which will show what success the valve is meeting in the East.

No. of Valves	Building and Location	Architects	Address
35	City Club, W. 44 St., N. Y.,	Lord & Hewell,	16 E. 23rd St.
35	Apartment at 141st St. and 7th Ave.,	Harry T. Howell,	3rd Ave.. 138th St.
150	Hotel opp. Museum of Natural History,	G. F. Pellham,	503 Fifth Ave.
150	New Bldg. for Butterick Publishing Co.,	Horgan & Slattery,	1 Madison Ave.
75	Webster Apartment, W. 45th St.,	Tracy & Swartwout,	156 Fifth Ave.
130	Hotel, Bdwy & 57th St. N. Y.,	Construction Realty Company,	112 W. 42nd St.
105	Clark Hotel, 55th St. & Bdwy,	Nathan E. Clark,	87th St. &, Madison Ave.
85	Alpha Realty Co., 15 E 60th St.,	R. C. Gildersleeve,	160 Fifth Ave.
50	Ethical Culture Bldg.,	Carrere & Hastings,	22 E. 41st St.
10	Criminal Court Bldg., N. Y.	Louis Horn,	27 W. 33rd St.
35	Home for Aged Men, Brooklyn, N. Y.,	Lord & Hewell,	16 E. 33rd St.
50	Bessemer Bldg., Pittsbg., Pa.,	Grosvenor Atterbury,	20 W. 43rd St.
60	Jail at St. Paul, Minn.		
21	Vose & Sons' Piano Co., Boston, Mass.		
50	Factory at New Bedford, Mass.		
90	St. John's College, Fordham,	J. E. Kirby,	5th Ave. and 40th St.
85	Manhattan College, University Heights,	J. E. Kirby,	5th Ave. and 40th St.
51	Studio Apartments, 67 St. Livermore,	Pollard & Steinman.	
400	Hotel 35th St. and 5th Ave.,	Hiss & Weeks.	
385	Knickerbocker Hotel, Bdwy., 42nd St.,	Davis & Marvin.	

In conjunction with this, the Nethery Co. have issued a book explaining in detail the sizes of pipe necessary for direct pressure systems, also arrangement for operating from a storage tank placed above the highest fixture. This Booklet contains the only tables showing friction in small water pipes ever issued. The National Brass & Metal Co. of Minneapolis, Northwestern Agents and Liscencees, will gladly furnish this booklet to any one interested, also any further information desired.

A LARGE CONCERN.

One of the largest and strongest concerns in the west engaged in the building stone business is that of William Penn & Co., of West Superior, Wis. They have shipped during the first half of this year 150 car loads of their cut stone to fill the large contracts they have already secured, besides having on hand large orders from La Crosse, Wis., Ada, Minn., Orange City, Ia., Walker, Minn., and Webster, S. D., and many other orders from different sections in the northwest.

They are at present employing over eighty men in their yards at Tower Slip, Superior, and their business under strong and able management is constantly and rapidly increasing in every direction.

Wanted:—A new line of general art, architectural and engineering catalogues. Address Herbert C. Chivers, 322 Wainwright Bldg., St. Louis, Mo.

EVERY ARCHITECT SHOULD HAVE IT.

We have just received in pamphlet form the report of Prof. Charles L. Norton. of the Massachusetts Institute of Technology, on "Tests for Sound Deafening for the Dormitories of the New England Conservatory of Music," which was published in full in "Insurance Engineering," for August, 1902.

While architects and builders may have had an opportunity to read some extracts of this report in the building trade publications of the country, many of them have not had the privilege of reading it in full. Because of the extreme importance of this report of Prof. Norton's to those interested in building affairs, the manufacturer of "Cabot's Sheathing and Deafening Quilt," which was used in one of the rooms of the New England Conservatory of Music Building, the other rooms being supplied with other so-called deafening products, has had the report printed in this convenient and condensed pamphlet form, which will be greatly appreciated by that portion of the public who are interested in matters pertaining to building.

The "Cabot Sheathing and Deafening Quilt" is made of cured eel-grass, a seaweed that is matted into a laminated cushion, held in place by two layers of tough paper which are sewn together. This grass is very tough and is absolutely uninflamable, and will not only keep out the heat in summer, but will also keep out the intense cold of winter, as one layer of it is equal to nearly six layers of common paper, and besides is very much better, and it is at least one-half cheaper than back-plastering.

This "quilt" prevents the passage of sound through floors and partitions by breaking up and absorbing the sound-waves. It is the only deadener having this property, and is therefore immensely superior to the ordinary felts. Architects now acccept it as the standard deafener, and it is generally used throughout the United States.

INDIVIDUAL LIGHTING PLANTS.

It will perhaps be interesting to a great many architects and contractors throughout the north and west to know that there is a thoroughly reliable gas plant on the market for lighting and cooking and has been in practical use in the east for several years—among the users being very well known people such as Hon. Abram S. Hewett, New York, Wm. S. Post, New York, J. G. Schurman, Pres. Cornell University, J. Hopkins Smith, etc., and even Uncle Sam himself is the largest user of all, having hundreds of the "Colt" Carbide Feed Acetylene Generators in operation at army posts, Indian schools, light houses, docks, etc.

Acetylene gas is the most perfect illuminant, being nearer the sun's rays than any other. Poor makes of generators in the west especially, have hurt the reputation of acetylene gas some machines causing offensive odors to fill the house, burners emitting soot, etc.; but with the "Colt" perfect satisfaction is assured.

No mantles are required with acetylene, a pure, steady, white, sparkling light being obtained without. There being no smoke and very little heat from the light; wall decorations are not injured and electric globes can be used. It is the easiest light on the eyes and house plants thrive where it is in use. Acetylene is far superior as an illuminant to any other, and has the advantage of being as cheap as kerosene oil.

Cooking is practicable where a "Colt" is used, and the cost is but a trifle more than city coal gas at $1.20 per 1000 feet.

The "Colt" machine has been selected by the Minnesota State Fair Association to light the grand stand, main building, poultry building and several smaller ones, and an exhibit will be made of Colt apparatus in the main building, which, no doubt, will be very interesting.

Architects and contractors will be glad to recommend this machine for buildings which are not contiguous to city gas and electric plants, or where good service cannot be obtained. The leading architects of New York, such as Post, Gilbert, Howell, Stokes, Lord & Hewlett, and Wheeler, recommend it.

BECOMING POPULAR WITM BUILDERS. HOLLOW CEMENT STONE.

Some products in the building material line spring into popularity and general usefulness, and there is no special cause for wonder, for they seem to have been created to meet "a long felt want" which existed prior to their advent, and they simply and naturally step into their place of preordination in the furnishing or construction of a building. They satisfy the needs of the owner, the architect and the builder when the irresistible logic of their utility speaks out their wonderful merits. In fact so plainly evident is their value and necessity that the first thought is, "Well, its strange some one did not invent that long, long ago."

Architects and contractors and builders generally, as well as owners, are anxious to become acquainted with this new material for building and its method of manufacture, with the evident view to its adoption.

Cement, in building construction, is used in two ways: 1st, the solid concrete, either plain or reinforced with metal rods of various kinds. This is built up in the wall. 2nd, the hollow cement concrete blocks, made in machines or molds, and, after seasoning, laid up in the wall like any stone. Each has its own field. That for hollow blocks is much greater, as they are adaptable to any size or style of building.

POURING THE STONE.

There are several devices for making hollow concrete blocks, all using the same principle. They consist of a mold, having four removable sides, and cores which draw out of the bottom. The material, composed of cement and fine sand, is mixed in proportion of one of cement to four or five of sand, with about 10 to 15 per cent of water, making a very dry concrete, which is tamped or pressed into the mold, the top struck off, the cores withdrawn, the sides removed, and the blocks removed on a false bottom and put away to "set" and season. This produces a "Hollow Concrete Block." In this process the concrete can be only sufficiently wet so as to "pack" well. If more water is used the stone cannot be removed from the mold. To develop the full cementing power of Portland cement, it must have a surplus of water. The reasons for this are as follows:

1st. The action that takes place when Portland cement and water are brought together, is crystalization, that is crystals are formed by chemical union of cement and water. When these crystals are formed in contact with foreign material, such as sand or gravel, a bond is formed between adjacent particles of the sand or gravel, by this uniting crystal. In this chemical action the cement absorbs a large quantity of water. If sufficient water is provided, incomplete crystalization of the cement must result, and a part of the cement is wasted.

2nd. The closer the particles of sand or gravel are brought together, the less space there is to be filled with cement. Consequently the more compact the mass is, the more particles of material the same amount of cement will come in contact with. It follows that for the economical use of cement, the greatest density is necessary. The surplus of water creates a dense condition of the same. This is illustrated in the process of "flooding" in refilling sewer trenches. No amount of tamping can accomplish the same result.

THE STONE YARD.

This wet process of manufacture as used by K. Dykema Sons, No. 29 Fountain street, Grand Rapids, Mich., which we herewith illustrate and describe, makes the most economical, most dense and most beautiful shape of hollow, concrete building blocks that we have yet examined. It is an absolute fact that by this method of manufacture these blocks of stone can be made in the 12-inch size at a price equal to $3.50 to $4 per thousand for brick, besides making the price of laying them in the wall at a figure equal to $2.50 to $3 per thousand for brick, which any one at all familiar with brick work will know is about one-half the expense of a brick wall. In 8-inch size they can be made equal to the cost of wood for the construction of residences.

Some responsible builder or concern located here in the northwest should write K. Dykema Sons, at the above address, and secure the right for manufacture of this cement-stone from their beautiful designs and by this most scientific method.

BELIEVES IN EXPANSION.

M. J. O'Neil, the most prominent man in the plumbing and heating business in St. Paul, has established a branch in Minneapolis at 814 Nicollet avenue—two floors and basement —with the finest show rooms in the northwest.

J. G. Beattie, the well known Minneapolis plumber, will have charge of this branch and will carry a complete line of the latest plumbing and heating fixtures. Mr. Beattie needs no introduction to Minneapolis people, having been identified here for so many years with a high-class plumbing business. He will be glad to show his many friends and patrons all the newest and best things in the plumbing and heating plant line, sanitary plumbing, steam and hot water heating, gas and electric fixtures.

AT THE FRONT.

That the G. Drouve Co. of Bridgeport, Ct., are at the front in their line of business, may plainly be seen from the recently filled contracts for their products for large and important buildings in various parts of the United States and Canada as follows:

The Thomas Davidson Manufacturing company, Montreal, Canada, Lovell apparatus.

Sheet metal work on building for Charles A. Matthies, White Plains, N. Y.

Lovell apparatus in worsted mills of Fred L. Sayles Company, Pascoag, R. I.

Lovell apparatus in the McNab and Harlan building, Paterson, N. J.

Skylight and sheet metal work on the new building of North and Judd Manufacturing company, New Britain, Conn.

Lovell apparatus in the Meridian Cotton Mills, Meridian, Miss.

Lovell apparatus in the Clinton Woolen Manufacturing company, Clinton, Mich.

Skylights of the new buildings for Barnum and Bailey, circus winter quarters, Bridgeport, Conn.

Lovel apparatus in the Monessan Pennsylvania plant of the Pittsburg Steel Company.

Lovell apparatus in the Ravine Mills Company, Vernon, Conn.

Lovell apparatus in the Union Typewriter company building, Syracuse, N. Y.

Lovell apparatus in the Ansonia Brass and Copper company building, Ansonia, Conn.

Lovell apparatus in the Larkin Soap company building, Buffalo, N. Y.

Lovell apparatus in the E. Ingraham building, Bristol, Conn.

Lovell apparatus in the Union Steam Pump company building, Battle Creek, Mich.

Lovell apparatus in the Cumberland Electric Light and Power company powerhouse, Nashville, Tenn.

Lovell apparatus in the Lamb Knitting Machine company, Chicopee Falls, Mass.

Lovell apparatus in the Carter-Crume factory, Niagara Falls, N. Y.

It is hoped that the architects and builders of the west may see the merits and advantages of the use of the Lovell window and shutter device, made by the G. Drouve company at the above address.

It is perhaps needless to say that estimates and all detailed information regarding their valuable window shutting device will cheerfully be given upon request.

OPENING OFFICES IN MINNEAPOLIS

The number of dealers in stone, lime, cement, brick, etc., in Minneapolis, is constantly being augmented. The latest new comers are Fowler & Pay, the well-known concern of Mankato, Minn., whose dealings in the above materials have so greatly increased throughout the northwest that they were compelled to erect warehouses at the Minnesota Transfer, where shipping facilities are in every way better for supplying the trade in the territory north and west of the Twin Cities.

This move of this old and reliable concern, caused them to also open an office in Minneapolis, from which they can conduct this end of their large and growing business, although their home office still remains at Mankato.

It is probable that both Mr. Fowler and Mr. Pay will each spend a portion of their time in the Minneapolis office, which is located at suite 214-215 Lumber Exchange building, where they will be pleased to attend to all business of this section, and where they can become better acquainted with their rapidly growing trade.

USEFUL AND INSTRUCTIVE.

The Kellogg-Mackay-Cameron company, of Chicago, Minneapolis, Kansas City and Seattle, have issued and are now mailing to architects, engineers and the heating trade, a useful and instructive catalogue descriptive of their radiators, showing in handsome half-tone cuts the different styles and sizes, together with a description of the heating surfaces of the same.

Besides containing a complete general telegraph code, the catalogue also has their radiator telegraph code, as well as a scientifically written article by Morris E. Ebersole on the manufacture of radiators, from the crude castings up to the finished article ready to set in place.

The Kellogg-Mackay-Cameron company claim to have attained the highest degree of perfection in the construction and efficiency of radiators, and if the beautiful cuts of their goods count for anything, we are of the opinion that they have not exaggerated in the least in what they say about their products.

PERSONAL MENTION.

Mr. George H. Gibson has resigned as manager of the Advertising and Publication Department of the B. F. Sturtevant Co., of Boston, Mass., to accept an appointment with the International Steam Pump Co., having offices at 114-118 Liberty street, New York City. Mr. Gibson was formerly connected with the Westinghouse Companies' Publishing Department of Pittsburg, Pa., and was for two years a member of the editorial staff of the Engineering News of New York City.

The Winslow Elevator and Machine Co., of 96-100 North Clinton street, Chicago, are sending out an illustrated circular of their electric elevator engines for passenger and freight elevators and dumb-waiters. This well-known and reliable house make everything desired in the elevator line, and the half-tone cuts in their circular shows many different styles and designs of engines for various requirements. A letter or postal of inquiry to them at the above address will bring all necessary information.

THE ONLY
PERFECT
Weather Strip

Invisible
Indestructible
No Rubber
No Felt
No Wood

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MINNEAPOLIS, - - MINNESOTA.

LOW PRICES
ESMIMATES FURNISHED

STEAM AND
HOT WATER BOILERS

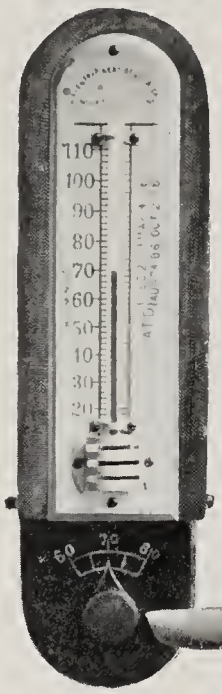
D. R. Black,

Plumbing, Steam and Hot Water Heating.

20 THIRD AVE. WEST,
DULUTH, MINN.

TELEPHONE 450.

Uniform Temperature.



The Minneapolis Heat Regulator

Is applicable to furnace, steam or hot water apparatus. Can be applied to old plants as well as new. Automatically controls the drafts, a change of one degree at the thermostat, located in living room, is sufficient to operate the dampers. The device is as simple as a clock. Gives perfect satisfaction. Has been upon the market for twenty-two years. Booklet for the asking. Specified and recommended by leading architects. Sole under an absolute guaranty with free trial.

February 4th, 1903.

"I enclose check for bill herewith. I do not take advantage of your 30 day guarantee, because I find your apparatus works perfectly and to my entire satisfaction.

JACOB SCHREINER,
The Schreiner-Flack Grain Co.,
St Louis, Mo.

New York, January 5th, 1903.

"After experimenting with your Regulator for a month, I find that it is exactly what I have been looking for. It is eminently satisfactory, and in sending you my check I want to add a word of commendation.

HARRY T. SCHRIVER,
Of T. Schriver & Co.
333 E 56th St., New York

January 14th, 1903.

"Enclosed please find check for the amount of my account. The Regulator appears to be perfectly satisfactory and I believe will fully meet the requirements."

F. E. V SHORE,
Occulist,
Des Moines, Iowa.

Adjust here

It's Automatic

Correspondence with Architects Solicited.

Special price on our Device for Architect's personal use on their own plants.

Electric Heat Regulator Co.

Fourth and Phoenix Sts., MINNEAPOLIS, Minn.

THE MOST PROMINENT
ARCHITECTS OF NEW YORK
Such as POST, GILBERT, WHEELER, GIFFORD, TEALE, RENWICH, ASPENWALL & OWENS, LORD & HEWLETT, etc, know of and highly Recommend the

"COLT" Acetylene Gas Generator

(CARBINE FEED.)

Manhanset House, Shelter Island, N. Y. using 1000-light plant.

A Perfect Working Machine.

Easy to re-charge, emits no odor, wastes no gas, guaranteed satisfactory

We are aware the Architects of the Northwest know of other machines which have proven failures, but we wish to inform them that the "COLT" will please in every case, and is being used extensively, especially throughout the East for lighting all kinds of buildings—large or small. COOKING can now be done economically and satisfactorily with Acelytene gas when the COLT generator is used. The many points of superiority of Acelytene over all other illuminants and the "COLT" over all other machines is well set forth in a finely illustrated catalogue which we will be glad to mail on application.

N. W. Agency, J. B. COLT CO.,
I. E. BURT, Manager
238 Hennepin Ave., MINNEAPOLIS, MINN.

The "COLT" took highest award, World's Fair Buffalo.

IMPORTANT NOTICE.

THE great saving in both material and labor secured through our end-matched flooring invention, Patent No. 531,711, as well as the superior quality of the floors, has led to the general adoption of end-matched flooring all over the United States.

The Government engineers, after the usual careful and painstaking investigation, have also approved it and specify its use in Government Buildings.

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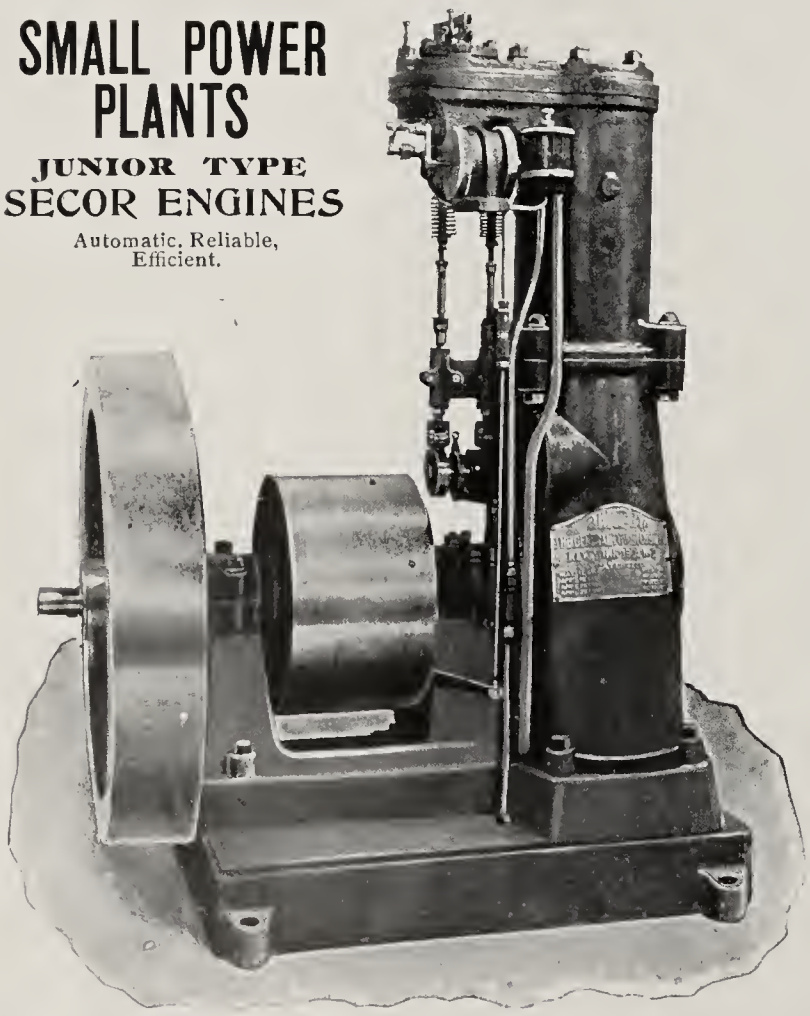

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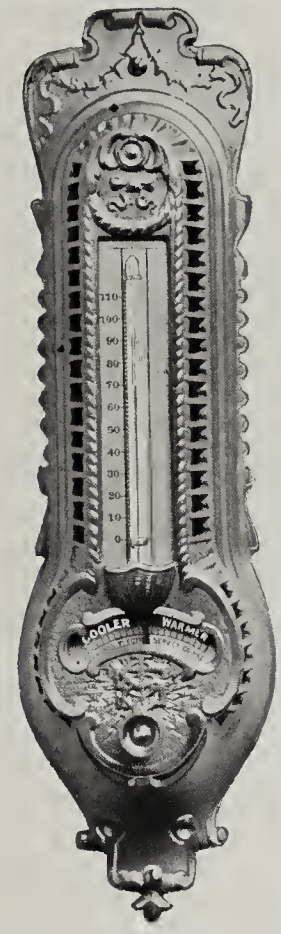

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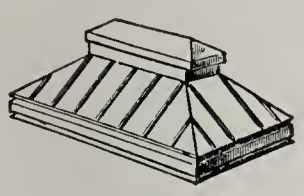

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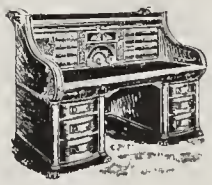

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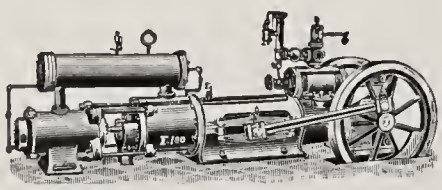

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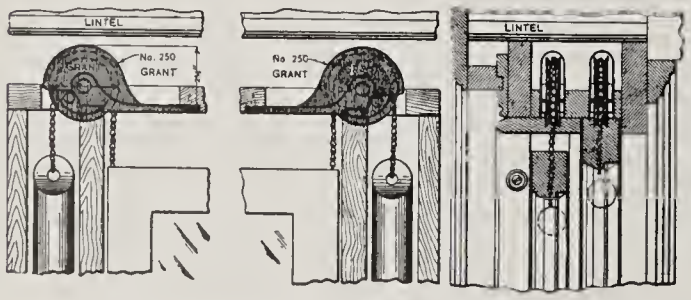

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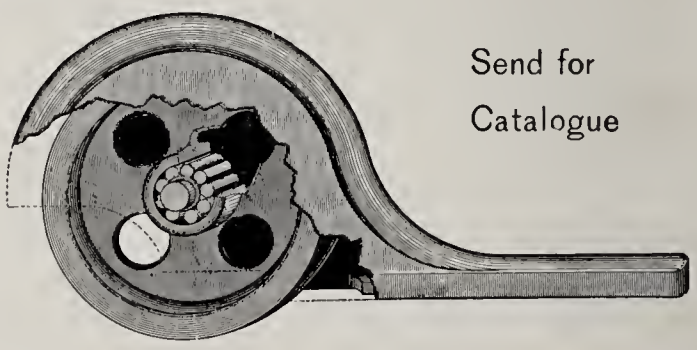

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DEVOTED TO ARCHITECTURE AND ALLIED ARTS

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PLUMBERS in the larger towns of Minnesota, after getting the legislature to fix things up for them as well as they knew how to have it done, now find their scheme badly at fault. The state licensing act for journeymen plumbers was made to cover only those working in towns of more than 10,000 inhabitants, while pains and penalties were to fall upon him who in such towns employed the unlicensed. Now comes Judge Holt and declares the law unconstitutional, because of its excepting small towns, and the plumbers see little hope of getting the rural legislator in line.

THE passing of the only Whistler removes from the art world a unique figure, who has left upon it a deeper impression than he is commonly credited with. Going back to the time when Ruskin was attempting to suppress Whistler and one of his methods by declaring that Whistler was "flinging a pot of paint in the face of the public and calling it art" it is undeniable that there were few things in art to remind one of Whistler's ways where now there are many. Whistler might doubtless have left a still deeper impression had he cared to seem in earnest himself. People could hardly be expected to expect much of a man who would write a book on the "Gentle Art of Making Enemies."

WHEN some gentlemen went about building a sky-scraper without regard to legal limitation of height on Copley Square in Boston some years since, there is no evidence that they did so with the motive of earning the thanks of the public. Yet if rumor is true they have done just this, for they are said to have exhausted every legal resource in defending their right to override the law, and to have obtained their final turning down from the U. S. courts of last resort. If such is really the case the public may get double pleasure out of the razing of the stories of this sky-scraper which are above the legal limit; for not only are the owners suitably punished for their presumption, but they have been to the expense of establishing the principle of public control in such cases.

THE great upheaval in the New York Building trades has subsided and peace and harmony is promised for the balance of the building season at least. But the profession of business agent to labor unions has fared badly, so badly that the unions themselves appear only moderately reluctant to dispense with the services of these gentlemen, some of whose business methods have led them to gaol and cast such a slur on the whole profession that business will be dull with them for a time not only in New York but in the country at large. No one has appeared thus far to predict any great industrial depression as impending because of the forced inactivity of these same business agents.

THE calling of the great financial promotor is also passing under a cloud, and it would be well for the country if for a good long period it would recognize the industry of this class also at its true worth. Perhaps the value of good laws in keeping the industry of the promotor within proper bounds, is nowhere better illustrated than in the street railway situation. Street railway development has, as all know, far outstripped that of steam railways for the period since the coming of the trolley. Reckoning on the basis of single track road, the mileage is said to have increased more than 175 per cent within the last dozen years. The average capitalization of these roads is given as $96,287 per mile on the single track basis for the country at large. In Massachusetts, however, where until within a few months it has always been the policy to keep the stock and bond issues of corporations as close to the cost of the properties as possible, these roads are capitalized for only a trifle over $39,000 per mile. This Massachusetts average includes the Boston Elevated road at $591,414 per mile. While Massachusetts lines are capitalized at less than $40,000 per mile, they probably cost more than those of Minnesota, which carry a capitalization of $107,000, or of Maryland or Missouri, either of which carry over $150,000 per mile. In some properties this watery residue, this excess of capitalization over cost, this product of the promotor's industry is being squeezed out of the "widows and orphans" and "lambs" who bought it at such a rate as to cause fear of panic in quarters not afflicted. And no wonder that the faint-hearted tremble when they read of shrinkage in Mr. Morgan's Steel Trust and Shipping Trust stocks amounting to $400,000,000. Of course much of the latter and of other similar "property" never passed to any genuine purchaser, and the collapse has come, when general trade conditions are good; but had it been coincident with bad crops and low prices for farm staples as was the collapse of the real estate bubble of a decade since, there is no telling what it might have knocked down in its fall.

STEEL TRUST stock has been going down so much and so long that consumers of steel are beginning to feel hurt at the delay of steel prices in following. And it is asking a good deal of them to continue to pay cheerfully just as much for the steel as they did when they were expected to pay dividends on all that water.

EMPLOYING plumbers in St. Paul who sought to obtain from Judge Kelly a permanent injunction against interference with their business by members or agents of the Plumbers' Union, have not obtained from the court nearly as much comfort as did the Minneapolis employers of electric wire workers from Judge Cray. The effect of Judge Kelly's decision has perhaps not had time for development, if indeed it is not discounted by conditions of supply and demand. He seems, however, to have held such wholesome views of the rights and limitations of the parties to the controversy as to merit publicity. Some of these views are as follows:

"The employer, if he be not obligated by time contracts, should he be unwilling to grant even lawful demands of his workmen, may without subjecting himself to the law, discharge his servants in a body. He can close his business—a factory, maybe—and keep it closed until his employes are willing to come to his terms. He will not be violating the law of the land, because he is free to use his own as he chooses. Of course, if he do these things for greed and oppression, there is a higher law, but of that we do not speak.

Laboring men whose capital is brain, muscle and skill have the same right—no more, no less—of combination and co-operation one with another for achieving any lawful purpose, as has that other force controlled by men, which, though silent and unseen, is none the less powerful and which we call money.

To prevent by violence, or coercion or intimidation another workman from taking or retaining employment which is satisfactory to him is to offend against the plainest rule of justice.

To warrant an injunction in a case like this, the right to it must be made clear, the injury impending and irreparable if it fail. It is a drastic remedy, and is to be invoked only where the ordinary process of the law is powerless for relief."

Judge Kelly appears less ambitious to assume the management of things in general through injunctions than do some of our courts, and for that reason his views of the rights of employers and employed bear all the more weight. The electric wire workers case referred to in our last issue has, it is announced, been appealed to the supreme court of the state, and it is to be hoped that the action will bring from that body something clear and tangible in the way of an authoritative statement of the rights and limitations of parties to labor disputes.

LITTLE towns Down East have a praise-worthy way of celebrating at long intervals and in this way showing a forgetful world where people of note came from. At the recent 150th anniversary celebration of Spencer, Mass., it came to light during the ceremonies that not only was Elias Howe, inventor of the sewing machine, born in Spencer, but that his half-brother William, was the inventor of the Bridge Truss bearing the name.

THE Art Commission recently appointed by Gov. Van Sant of Minnesota under an act of the last legislature have organized so far as to elect the following officers:

President, Mr. Robert Koehler.....Minneapolis.
Vice-President, Miss Margaret Evans.....Northfield.
Secretary and Treasurer, Mrs. Wm. E. Thompson....Hamline.

The state appropriates $2,000 per annum for the use of the commission in promoting exhibitions, etc. Industrial art is to be encouraged and at least one exhibition held in the state each year, no two successive ones in any one city. Members of the commission serve without salary.

A collection of objects of art is one of the objects sought, presumably to be housed in the state capitol.

AFTER all that has been said about the wicked ways of lumbermen and the desolation that marks their path through the pine forests, now come the lumbermen themselves with loud protest against the rapid denuding of large areas of Indian Reservation pine land contemplated by the officials of the Interior Department. Still more bewilderment is in store for him who tries to square this action of the Department with the preachments from higher up in the executive branch of the general government.

In New York a great outcry has gone up about the management of a part of the forest area in the Adirondacks by Prof. Fernow who used to be at the head of the Forestry Bureau of the general government, but of late has had the direction of the State School of Forestry which has been run in connection with Cornell University. Whatever the facts about the way the lands in the Adirondacks set apart for the State Forestry School passed through the fires of the early part of the season, enough clamor was raised against the management of the lands by the school authorities to induce Gov. Odell to veto the appropriation made by the legislature for its continuance, so that now the school is about the same as if it were not. In fact the authorities are so badly discredited by the newspaper reports that it need occasion no surprise to see the lumbermen posing as the true conservators of the forests.

OBITUARY.

Mr. George F. Shepley, of the firm of Shepley, Rutan & Coolidge, died last month in the Engadine, at St. Morris, Switzerland.

Mr. Shepley was born in St. Louis in 1860, of a distinguished family, his father having been one of the most brilliant lawyers in the city. The younger Shepley received his professional education in Boston, graduating from the Massachusetts Institute of Technology in 1882. With his classmate, and future partner, Mr. Charles A. Coolidge, he entered, immediately after graduation, the office of H. H. Richardson. On the death of the latter, Mr. Shepley and Mr. Coolidge, with Mr. Rutan, who had also been for many years connected with the same office, continued in accordance with Mr. Richardson's formal wish the business which he left unfinished, and soon acquired for themselves a high reputation, carrying out a large number of important works. Among these the best known are the Ames building in Boston; the North Union railway station, in Boston, one of the most beautiful railroad buildings in existence; the South Terminal station, the largest railway station in the world; the Hartford station; the buildings of the Leland Stanford University, in California; the Art Institute and the public library, in Chicago; the Congregational House, in Boston; the Union station in Albany, and many private residences and mercantile buildings. Mr. Shepley, who married Mr. Richardson's daughter, was peculiarly identified with the work of that great artist, and the Galilee porch which was added to Trinity church, in Boston, some years ago, is quite worthy of the building. Mr. Shepley's health had always been delicate and the labor and anxiety of professional life severely tried his constitution. For a time he found it necessary to spend a part of the winter months in the dry climate of Switzerland, usually in the Engadine; but this condition seemed to pass away, and he had been able for some years to endure the winters at home, until, in January last, the appearance of grave symptoms made it necessary for him to leave his work and seek again the mountain air of Switzerland, unfortunately without benefit. Mr Shepley was always deeply interested in professional matters, and was prominent among the directors of the American Institute of Architects, so that he was very well known in professional circles throughout the country, and was universally beloved for his quiet courtesy. His work reflected the refinement and delicacy of his character, and, although he had to struggle constantly against physical weakness, few architects have been able to impress themselves more thoroughly upon their buildings, and his early death is a loss to American art, as well as to the profession.

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THE ONLY WHISTLER.

James McNeil Whistler, who has just died, held a peculiar place among artists, and among men. He was individual, orginal in all things; mentally and physically he was eccentric, and he always gave one the impression in his best works of one who would never do the great things that he could do. So the world will look in vain in succeeding years for the great work which should truly immortalize him. He did not regard it as worth while, perhaps; yet his portrait of his mother, now in the Luxembourg gallery, shows how capable he was of rising to heights of fine expression, as well as evincing an exquisite technic. His elements in this picture are the simplest; an aristocratic old lady in black, with folded hands, and a lace cap, sits on a chair in a plain room. There is not a bit of challenging color, but there is depth and richness of tone; the painting is wonderfully refined and not the least impressionistic; but the power of the picture is in its fine spiritual interpretation of a life and a character, and one can well believe that the artist had his heart in this work,—though many who knew him thought and said that he had no heart at all. He was fond of simplicity, and liked to reach it by subtle and complex ways; thus when he painted his "White Girl,"—all white, standing on a white wolf-skin mat, one immensely admired the marvelous differencing of textures and of keys of tone, with the one motive. But one scarcely remembers the face of the subject. Whistler did produce some remarkably strong portraits, but he would only paint what he wanted to paint,—money could not persuade him to do other. His color effects were very unusual, and opinions will always differ as to their merit. He was truly an impressionist, and cared little for detail in color; his "arrangements" in blue and gold, or in lilac and silver, his "noc-turnes" and "harmonies," consequently affronted those who could not enter into sympathy with his idea. John Ruskin once expressed himself in the very definite and vigorous fashion he had, concerning Whistler, who, he said, "threw a pot of paint in the face of the public" and dared to call it art. Whistler sued the critic for damages, and the pictures that furnished the provocation for the remark were exhibited in court, the result being that the jury awarded the artist one farthing damages. That farthing Mr. Whistler hung on his watch chain and used to exhibit it with sardonic pride. Artists themselves greatly value these paintings, regarding them as unrivaled for rare qualities. And there is no dispute anywhere as to his rank as etcher, in that it is conceded he has had no superior in our day. Any one who has studied Whistler's etchings, for example at an exhibition by the Grolier club, will recognize an unerring perception of the value and significance of a line. His celebrated little character portrait called "Joe" is an instance of this mastery of the first principle of the etching, of which many who practice the art know very little.

Whistler's whimsical and willful personality was betrayed at a glance; that favorite white lock of hair which he trained to hang down on his forehead revealed a vain mind, dwelling on itself, conscious of eccentricity and cultivating it. He nevertheless objected to having his pecularities recognized irreverently, as by Du Maurier in Joe Sibley, whom we met in the tale of "Trilby." Mr. Du Maurier had to change the book under penalty of prosecution. He apparently lacked humor and pathos, but he was a clever talker and had a biting and unkind wit, which spared no one. He wrote ingeniously, in a purely Whistlerian style, and "The Gentle Art of Making Enemies" was no joke, but a self-appreciation of uncommon merit. Many are the anecdotes of Whistler current among his craft, who knew him in London or Paris, where he had lived most of the time of late, or in Venice or Rome. He was a figure in the society of these capitals. Every one will recall his remark when a group of fashionable women were discussing Sir Frederick Leighton, the president of the Royal Academy, whose forte was omniscience, who was handsome and knew it, and was a notable ladies' man. One said how beautifully he talked, another how delightfully he sang, another how well he played some instrument,—whereupon Whistler advanced the timid remark, "Paints a little, too, I believe." He used to coruscate sharp sayings, and 'tis said he furnished many a social spark with wit, which they would retail and often spoil the point of. To one of the esthetes who exclaimed after a sally, "Oh, how I wish I had said that!" Whistler said quickly, "You will say it, Oscar." There will never be quite another such man and artist as McNeill Whistler,—who because he was born in America is called an American, though he had no love for his native land, nor any characteristic of its people.—Springfield Republican.

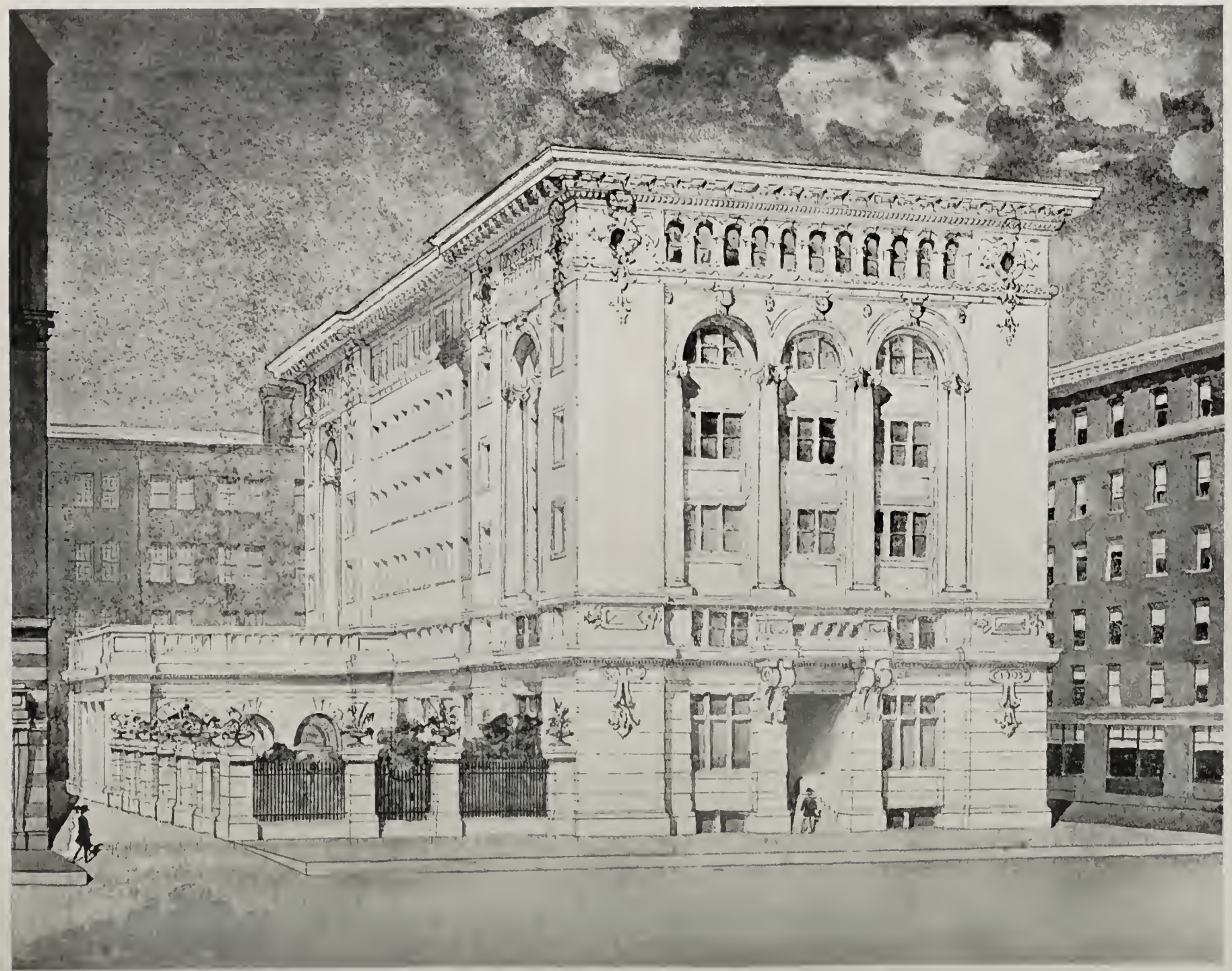
MANKATO'S STONE FOR MINNESOTA'S CAPITOL.

Mankato limestone has been discovered to be capable of taking a high polish, rendering it in appearance similar to the Italian marble for interior finish.

It has remained, however, for the capital commission to discover that the stone can be polished for interior finish.

A large pilaster of polished Mankato limestone has been put up in the main corridor of the new capitol. The stone can be produced in a variety of colors, shading from light yellow to a deep pink.

The capitol commissioners claim they discovered the capabilities of this stone, and the owners of the quarries admit that they did not know that it could be polished. For interior use the stone is first sawed and smoothed, then rubbed and polished. In appearance it resembles the famous Sienna marble, and may be used to produce the same effect.



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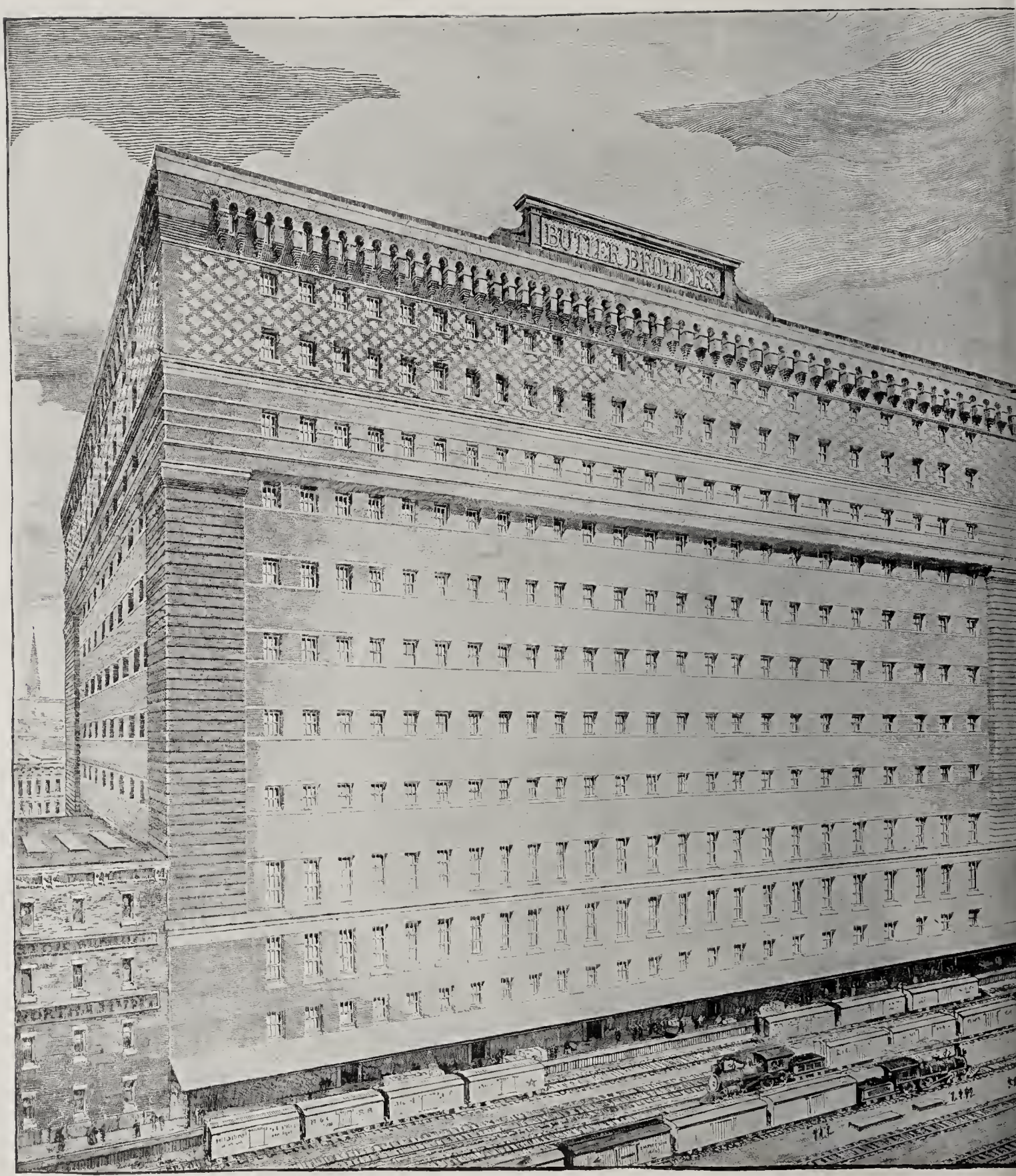

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A LONG TIME IN BUILDING.

The great cathedral of St. John the Divine, which is to be erected in Morningside Park, near the Grant monument and Columbia University, New York, is growing slowly, very slowly. At the present rate of progress it will be as long building as St. Peter's Cathedral at Rome, which wore out ten architects and forty-three popes and was consecrated 176 years after the foundations were laid. The new cathedral at New York is not to be so large as St. Peter's, but the plans are imposing, and there is a good deal of enthusiasm shown by many members of the Episcopal diocese of that city. It is being built in spots. The great arch of the choir has been completed. The extreme east wall has been built up to the height of thirty or forty feet, and here and there portions of the foundations have been laid. The grounds are covered with cut stone and a good deal of rough material, but there seems to be no regularity or system and the work goes on by fits and starts. Sometimes we have seen as many as a hundred men working industriously; and then again half a dozen will be sputtering around without method. The trouble seems to be a lack of means, although there is a popular impression that Bishop Potter has $5,000,000 in the bank or guaranteed.

Individual subscriptions have been made for various parts of the building. For example, according to the original plans, there were to be thirty-two great monolithic columns in the choir, each fifty-four feet high, six feet in diameter and weighing 160 tons, which is two-thirds the size of the obelisk in Central Park known as Cleopatra's Needle. Each of these columns is intended to be a monument for some individual whose heirs or descendants have sufficient gratitude or respect for his memory to contribute the expense. Bishop Potter will erect one in memory of his father, the late Right Lorenzo Potter; John Jacob Astor will erect one in memory of his father, and the heirs of the late Dean Hoffman will put up one in his honor, but the difficulty of shaping and transporting the columns from the quarries at Vinalhaven, Me., have been found insurmountable and the monolith idea has been reluctantly abandoned. If the plan had been carried out these would have been the greatest monoliths in the world, two feet higher and one foot more in diameter than the great plaster columns in the persistyle at the world's fair, which were fifty-two feet high and five feet in diameter. It is now proposed to put them up in two sections.

There is a prospect that the Architecural League of New York will have an exhibition under its auspices during the winter of 1904. The name suggested is the National Architecural and Allied Arts Exposition. The place considered is the new Herald Square Exhibition Hall, which is the ninth floor of the new Macy Building, at Broadway and 34th street. Mr. Frank E. Wallis is the secretary of the league.

AN IMPORTANT CONCERN.

Architects and laymen marvel at the extent and magnitude of the work of D. H. Burnham & Co., architects, Chicago. They have in hand work of the greatest magnitude in the largest cities of the country, extending from New York to San Francisco and as far south as New Orleans. They have on the pay rolls a force of 90 men and claim that they cannot put more men to work in Chicago because of the lack of space in their offices in the Rookery building. This is not written with a view to pleasing any one in particular, but to call attention to facts as they exist, and as such it is worthy of serious consideration for architects and professional men throughout the country. The writer does not have in mind very much data concerning the operations of the great Richardson; they were thought to be marvelous, but alongside the operations of Burnham they really become very insignificant. Most people interested in building remember the firm of Burnham & Root and its success, their success in securing the World's Fair buildings, the subsequent appointment of Mr. Burnham to the position of Director of Works, his work in that connection having never been equaled. After the fair he was afforded time, owing to the depression and lack of commissions, to relax. He had a lease on office space for which he had to pay rent but in which there was scarcely anything to do. Of course, this was an insignificant matter, in a sense, to Mr. Burnham, because he had ample means. During the past few years his work has increased until he has now reached a plane before which the operations of any other firm or any individual architect are not to be compared. It is but just to say with respect to other architects that his work may not be better, he may not be more capable, but the vast volume counts and there must be some reason for it. It is always interesting, particularly to young men, to observe, to study and to ponder the characteristics of great men and the traits which make them successful, and in reflecting upon this we can but recall the practice so prevalent in England and which prevailed for a short time in the early history of this country of the apprenticeship system with the customs which provided for the indenturing of young men to profession or trade, his parents or guardians paying a considerable sum for the association with successful practitoners in their respective lines. It would be well worth a considerable sum of money for any one to be associated with Mr. Burnham for a year or two and to acquire from him if possible the characteristics of success. But this is impossible. In the first place Mr. Burnham is very busy and a young man would scarcely have an opportunity to be with him one day in six, if that much. Architects and builders will do well to study their methods and see whether it is World's Fair reputation, executive ability, or artistic grace far in advance of all others, that makes for the success of this firm.—Exchange.

IMPROVEMENT OF THE CHANDELIER FOR GAS AND ELECTRIC LIGHTING.

Of all the changes which modern progress has brought about during the last twenty-five years, there is certainly nothing which has been so completely revolutionized as the lighting of our homes.

It seems almost incredible that so short a time back we were all content to sit down to dinner under a gas chandelier of three or four burners, with a flood of yellow light falling on us, unsoftened by any shades, and a stuffy, gas-laden atmosphere.

Nor was this all, for in order to get the chandelier nearer to the dining table, the water-slide pendant had been invented, and only so far back as the year 1900 the British medical journal, "The Lancet," protested strongly against the chandelier, which is still in use in hundreds of old-fashioned houses.

"If we do not go so far as to say that the water-slide gas pendant should be made illegal," says the "Lancet," "we certainly think that no prudent householder should put one into his house. It is never ornamental, it frequently occasions alarm, and in not a few instances it has been the cause of death. As every one knows, the principle of this chandelier is that of a water seal, which, of course, fails when there is no water in it."

The subject was taken up in various papers, including the "Journal of Gas Lighting," and everyone entirely agreed with "The Lancet."

The great difficulty was, how to replace the sliding gas pendant. Very many householders fought shy of the electric light. The Wenham was tried, but this was placed so high up it was not suitable for lighting the dinner table, nor yet the drawing room.

The incandescent burner had been introduced, but the inconvenience of this was, that as the slightest jar broke the mantle, the pendant had to be stationary, and a fixed chandelier could not be placed low enough down. Few people are aware that a gas light suspended three feet above the table gives only one-ninth of the light on the table which it would give if placed one foot above the table.

With the chandelier overhead the source of light shines directly on the eyes, and this causes the pupil of the eyes to contract, thus shutting out a corresponding amount of light from the objects looked at. It is just the same as in bright sunlight, when the sight is "dazzled" and the light, as it were, wasted.

The first principle, then, of artistic lighting is to shade the source of light from the eyes, and at the same time to throw a good light upon the surface to be illuminated. For shops and public buildings the main object is, of course, to get as brilliant a light as possible, and the unshaded electrics and incandscents answer this purpose.

In the homes, however, it is an absolute necessity that the lighting should be arranged with all due regard to the comfort of the inmates. In French houses where electric light has not been introduced, oil lamps are still the order of the day. Gas is very much used for kitchen purposes and for hall lighting, but as a rule the old-fashioned oil lamp pendants still reign supreme for the dining table, and oil lamps or candles for the dining room. The lamp and candle shades are exquisite and the wall brackets and candelabras for the lamps and candles in keeping with the style of each room. In many of the French homes we see those lustre pendants and bead fringes, at which only a few years back we laughed heartily, as being relics of a former age. Now that these same lustre pendants and bead fringes are the "latest thing," and consequently are being sold at high prices, we should be only too glad to own these authentic chandeliers of ancient date, instead of the copies of them, with which we poor modern people are obliged to content ourselves. The French who are extremely conservative, still use wax candles in these lustre chandeliers, instead of having imitation candles to form gas burners. This system of lighting is very effective in a house which is furnished throughout in French style, but nothing is more incongruous than lustre chandeliers and candelabras in rooms furnished in "Modern Art" fashion.

In England nearly every house which has not electric light has the incandescent burners. When these burners came into general use the great drawback to them was the fragility of the mantle, as the jarring caused by the drawing up and down of the slide chandelier was sufficient to break this delicate mantle. The new burner was therefore fitted to fixed pendants, but the light was then unsuitable for dining-rooms as it was too high up and women declared it on that account to be "unbecoming."

As in ninety-nine cases out of a hundred a woman's word is law with regard to the artistic arrangement of the home, something had to be done in order to reconcile the incandescent burner and its feminine adversaries.

One of the leading English firms for electric and gas fittings undertook the great task, and the "Surprise Pendant"—a chandelier specially designed for the incandescent burner—was soon patented in every important country. By means of this ingenious invention the light can be brought down within a few inches of the table, and can be pushed up high out of the way when not in use. By a touch of the finger and without the slightest jerk, it can be brought to the edge or center of the table, for it is so perfectly balanced that it remains in any position to which it is moved, within a three feet circle. When raised to its greatest height the light is three feet six from the ceiling, and when at its lowest, it is nearly eight feet below this.

The light is shaded by a patent shade which effectually screens the eyes and at the same time diffuses the light, so that a single burner, consuming four feet of gas an hour, will thoroughly well light a room 18 by 14 feet, giving off one-third of the heat and products

of combustion, which a three-light chandelier would give off, and at the same time throwing more than eight times the amount of light on the table.

By this system the air is kept pure, the ceilings and decorations free from injury by smoke, and the maximum of light and comfort is attained at the minimum of expense. In England, the "Surprise Pendant" is now universally used, and it has also been adapted for electric light. For drawing and dressing rooms, libraries and offices, wall brackets on the same principle are made, so that the light may be moved about to any position required. Photographers and dentists find it of great service in their work, as they can move the pendant to any position and wherever it is placed it will remain stationary.

Gas has not hitherto been used in the private apartments of King Edward, but these Surprise Pendants have now been largely adopted in the lighting of Sandringham House. The same system has been carried out in York Cottage, the residence of the Duke of York.

So greatly has the convenience of this pendant been appreciated, that the inventor decided to adapt it to the electric light, and as far as is possible it is now being manufactured in various styles in order to suit any rooms.

A patent ceiling fitting is used for these pendants, which permits them to be fixed either to a wooden ceiling block; or screwed on to iron pipe in the ceiling or hung from the ceiling without any alteration whatever. It is impossible to damage or twist the wires when turning the pendant in a horizontal direction and the ceiling fitting is so arranged as to completely insulate the pendant from the building.

The same firm has now gone largely into the manuafcture of electric and gas fittings of the Art Nouveau.

After passing through all the old English styles, and the more or less ornate styles of the various French epochs, particularly the Louis XV. and Louis XVI. with their beautiful scrolls, gilding and floral designs, their lustres and the effective cut glass bowl pendant which has lately come into such favor for electroliers, something entirely new was wanted.

"Modern Style" was introduced and was soon in vogue with some of the crudest and most grotesque designs which it was possible to invent.

All this, however, has been gradually modified, and the latest evolution is the Art Nouveau, which now reigns supreme and seems likely to hold its own for some time to come.

Some of the most beautiful gas and electric fittings are now made in this new style, and the very latest thing of all is the new iron work either in natural coloring, finished black or silvered, and this is, of course, specially suitable for the original designs of the Art Nouveau.—A. Hallard in Architectural Record.

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ABOUT ROOFS.

The roof may be said to be the essential feature distinguishing a building from the other structures of man; hence, architecture has been described, simply, as the glorifying of a roof. The boasted triumphs of classic architecture, the column, architrave and frieze, were but the supports of a roof. To cover and enclose a space of moderate area, the ancients were compelled to relinguish a large portion of it to columns and cross walls; producing an edifice without acoustic possibilities and without light. Large gatherings of the people for political purposes, amusement and exercise, had no place more protected than the open forum, the uncovered amphitheater and the wind-swept field.

It remanied for the monks and master-builders of the Dark and Middle Ages to perfect a construction whereby a considerable space could be covered, without intervening or obstructing columns.

The clere-story of many an old Gothic cathedral, covered by a blackened roof supported on arches of interlocking timbers, the whole sustained and braced by pillars and flying buttresses of stone, still stands, a marvel of strength and airy symmetry, to attest the ingenuity and skill of the mechanics of these robber races.

In the construction, if not in the glorification, of a roof, the architect and engineer of the present have surpassed all such works of the past. In our own country, there are some covering, without intermediate support, whole acres of space; any one of which, produced in Doric days, would have been classed among the wonders of the world. Such are the Madison Square Garden and the armories of New York, the great mill buildings of our manufacturing centers, the Auditorium of Chicago, and that latest and grandest triumpth of the builder's skill, the Manufacturers and Liberal Arts Building of the World's Fair; and even this vast roof, for it is nothing more, need excite no wonder in the modern builder. It had long been conceived and was possible, and required but the need, the occasion and the means to bring it forth.

As the architecture of the past has been broadly defined to be the glorifying of a roof, so modern office building construction may be roundly described to be the utilization of floors. For such buildings a flat roof is generally preferable; and, partitions being carried from basement to roof, intermediate supports for the latter can be easily provided and a construction similar to that of the floors naturally followed.

David M. Parry, president of the National Manufacturers' Association, confirmed the report that a company had been planned to insure employers of labor against strikes. He said it would be a mutual agreement and would be kept secret, so that a union would never know whether it was fighting combined capital or an individual employer. The company would aim to protect independent workmen as well as employers.

A severe blow was dealt the trades union grafters in New York on the 27 ultimo, when Lawrence Murphy, treasurer of the journeymen's stonecutters' union, was found guilty of grand larceny in the first degree for embezzling $12,000 from the union. His attorney made a strong plea to the jury in his behalf, urging that he be not made the scapegoat for a lot of "blackmailing grafters." Murphy's defense was that the stolen money must be the money taken from its true owners and the stonecutters' union never was the true owner of the money. The maximum penalty is ten years in the penitentiary. Murphy and his associates who testified in his behalf during the trial told how the trick was done. Murphy's lawyer called Col. Andrew D. Baird, one of New York's well known contractors, to the stand to tell of a $10,000 check transaction which had been made the principal feature of the trial. Col. Baird testified that he had received a call from Daniel Call, president and walking dele-union and wanted $50,000. Asked why they wanted gate of the stonecutters' union on March 13, the day his employes went out on a strike. President Call of the union said they came from the stonecutters' $50,000 they said they would have to be paid that amount before the men could go back to work. Col. Baird offered $5,000 and after repeated conferences the committe from the union agreed to accept $10,000, whereupon the money was paid over. It is such leaders as this that bring unions into disgrace and deprive honest hard-working men of the respect they should otherwise have.

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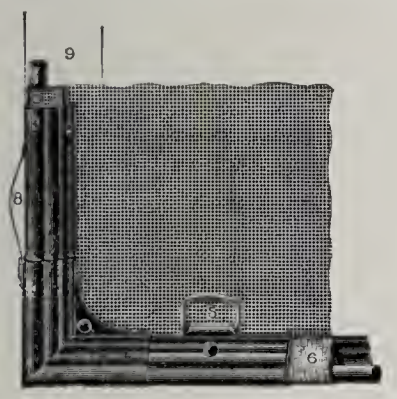

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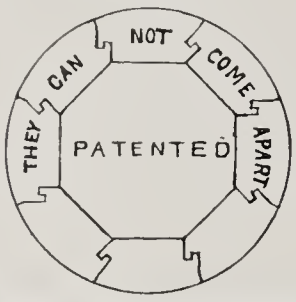

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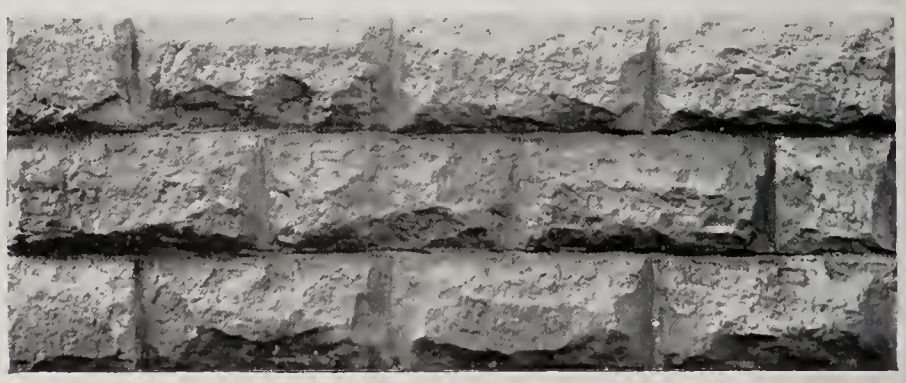

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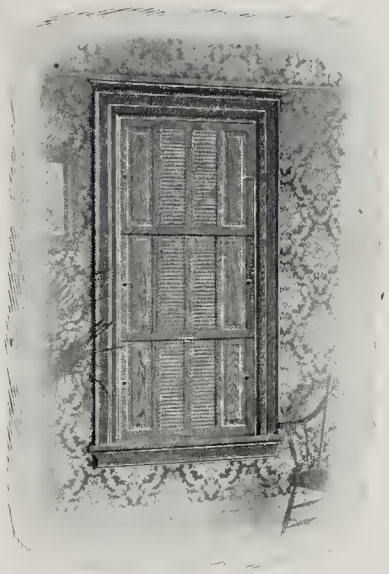

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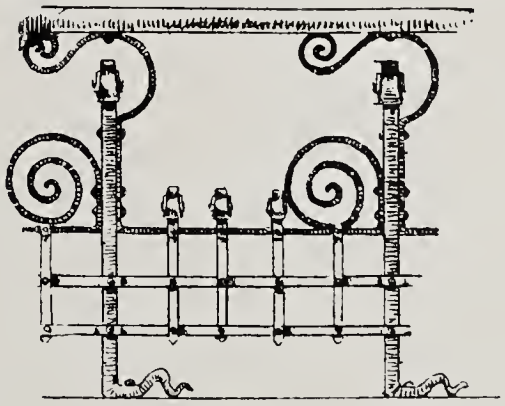

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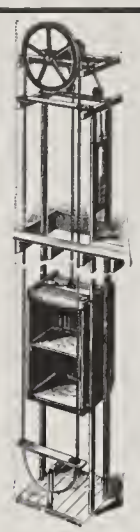

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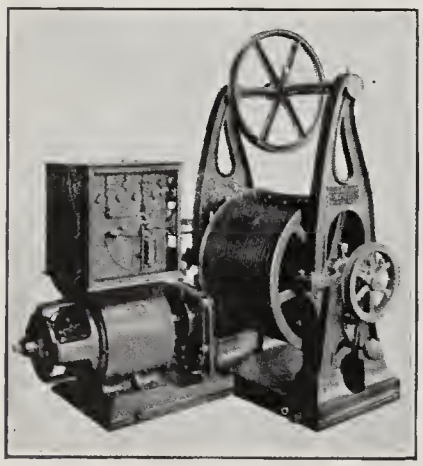

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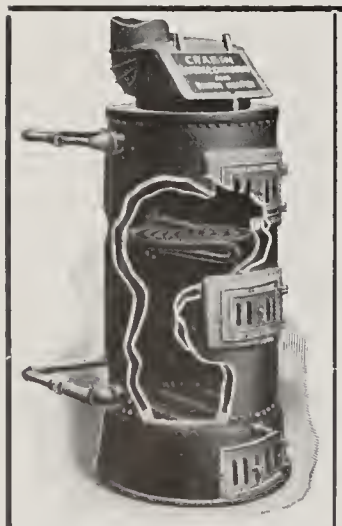

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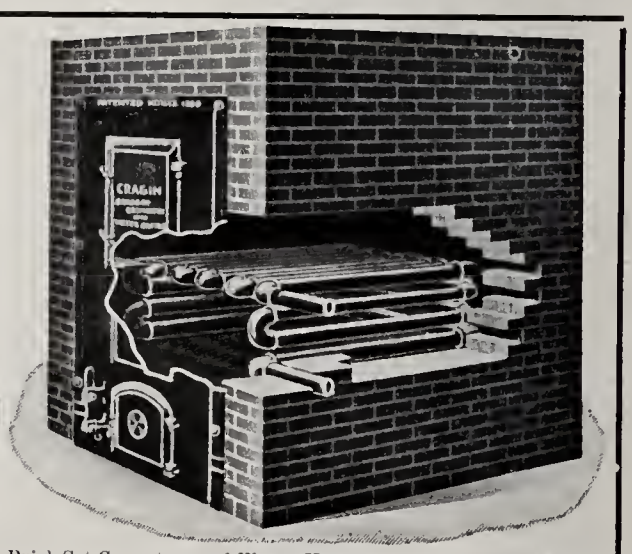

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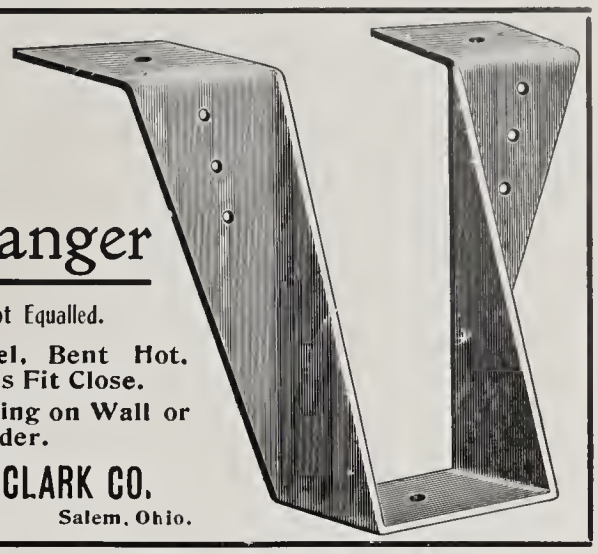

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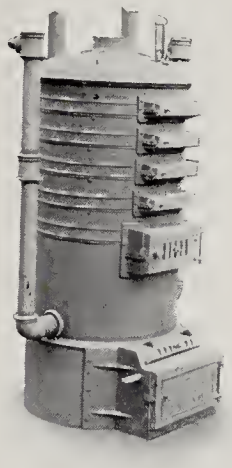

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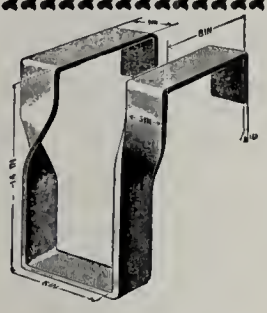

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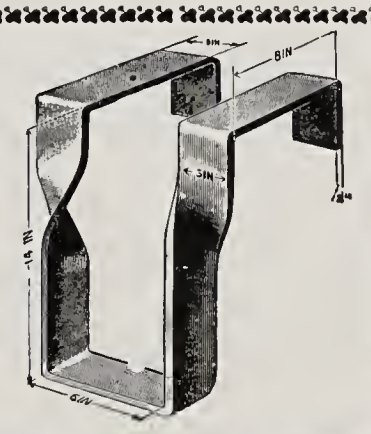

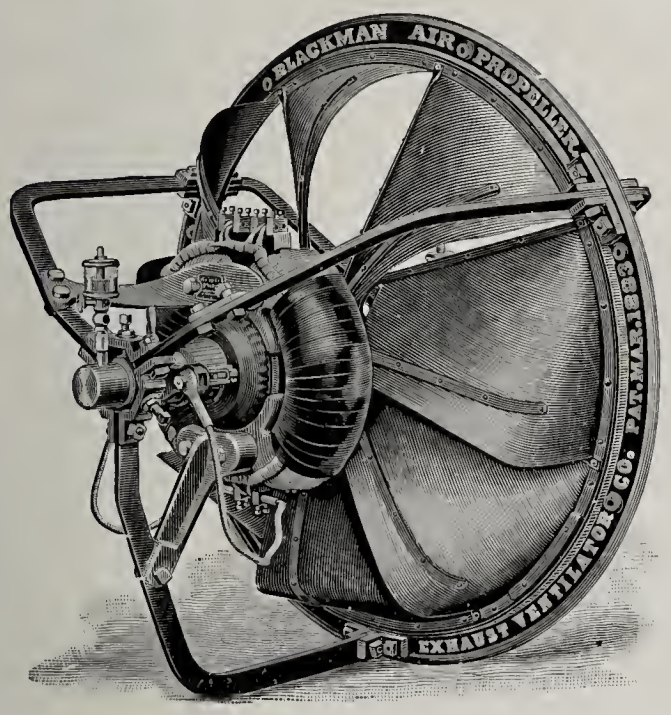

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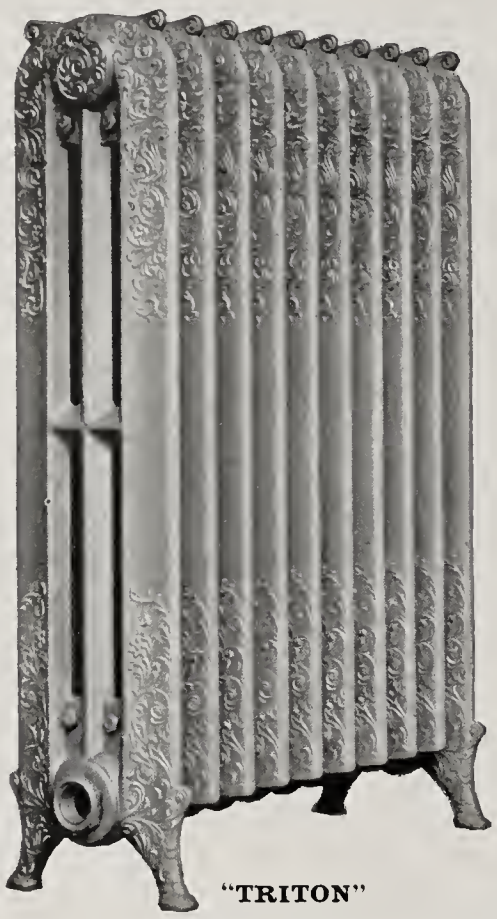
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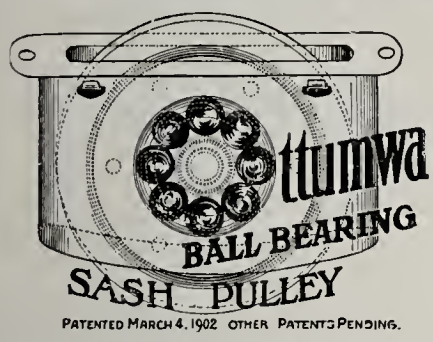

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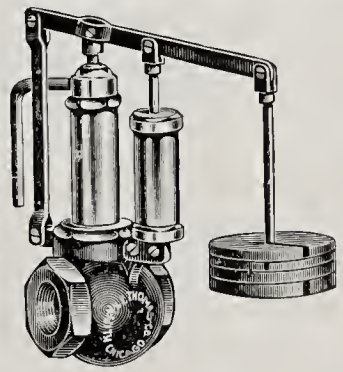

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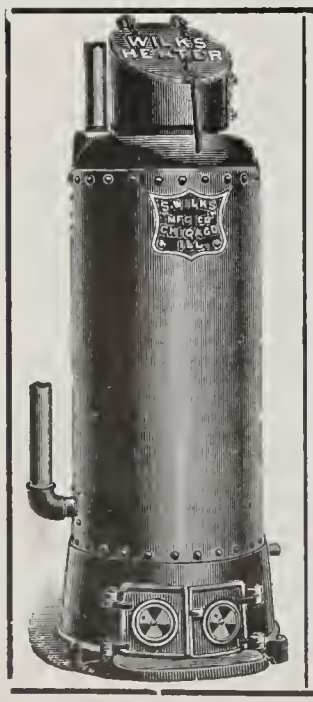

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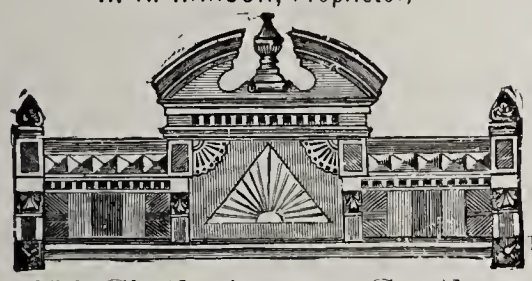

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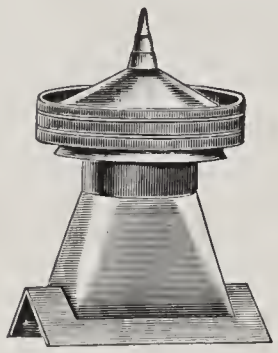

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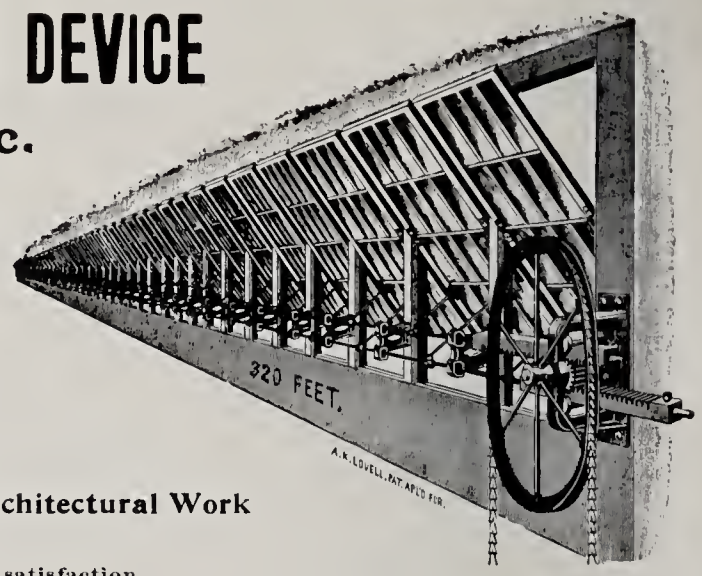

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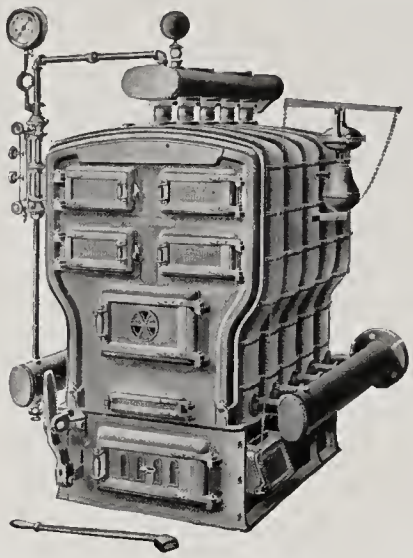

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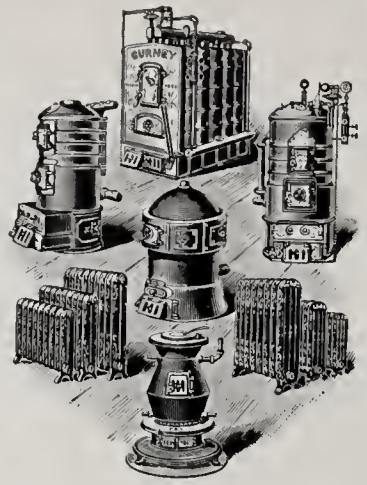

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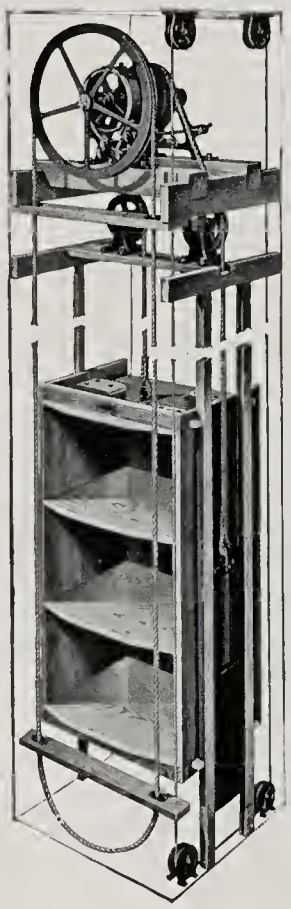

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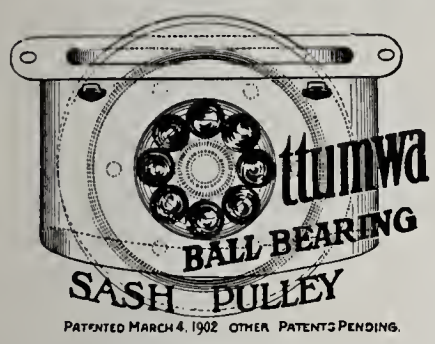

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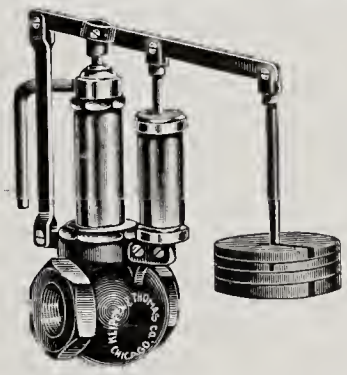

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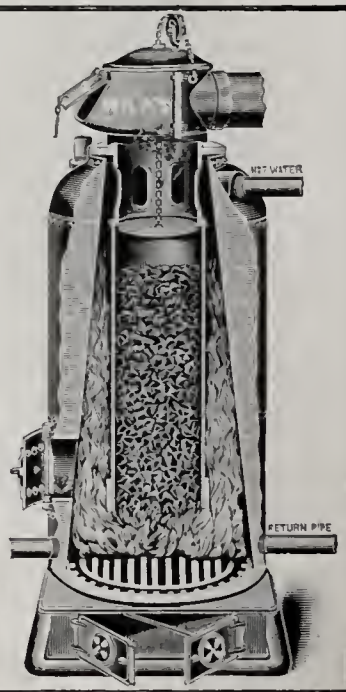

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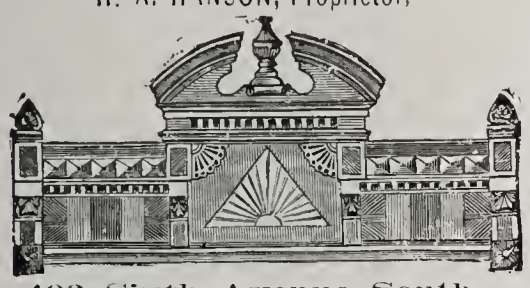

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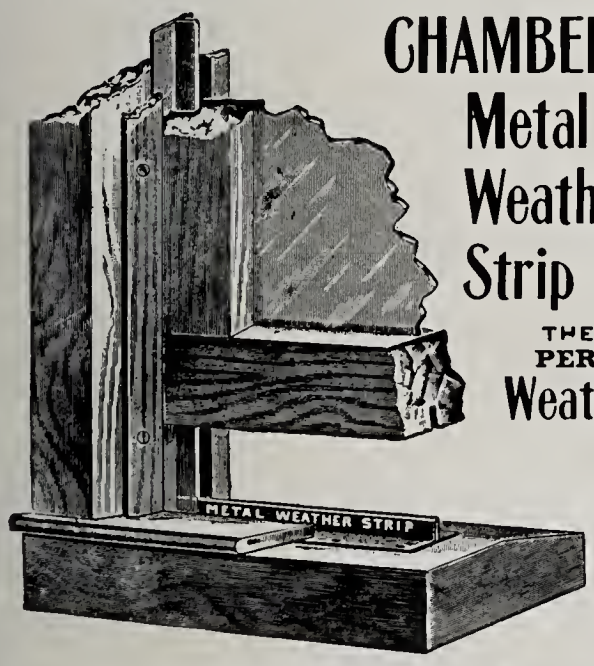

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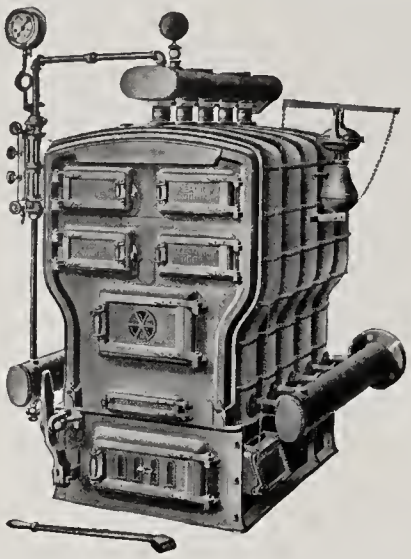

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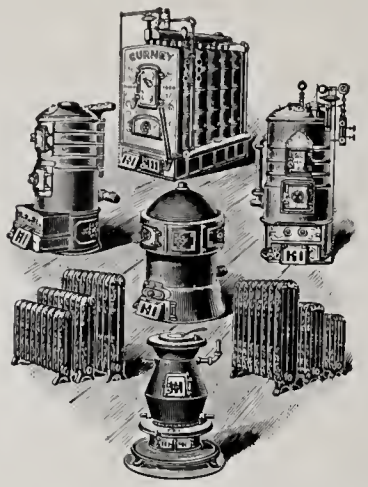

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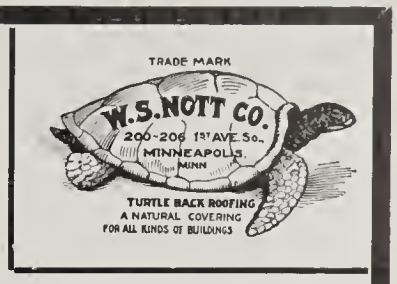

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OF GREAT IMPORTANCE.

We have just received circular form 88 of The American Well Works, of Aurora, Ill., of their well pumping machinery and devices which has lately come from the printer's hands.

Among the many different things that are illustrated in this circular may be mentioned Chapman's Patented Air Water Lifting Machinery that has been in extensive use for over ten years. By its use over one-half million gallons of water can be pumped per day from a four-inch artesian well, even when the natural rise of the water is several hundred feet below the surface. There is also illustrated the American Well Work's Patented Revolving Hydraulic Well Sinking Machinery, which has supplanted all other methods in the Texas oil fields, for the reason that over 1,000 feet five-inch diameter wells have been sunk, tubed and completed in twenty-four hours, whereas it took from two to four months by the standard drilling system to complete a 1,000-foot well. Theirs is the only practical process for sinking wells through clay, slate, shale, quicksand formations, etc.

Their works are enlarged and up-to-date. They have adopted the latest appliances for the manufacture of air compressors, gasoline and steam engines, deep well pumping and well sinking machinery, tools and appurtenances thereto. Raw material entering at one end of their works, becomes a finished product by the time it reaches the other. They give you the benefit in quantity, quality and price.

Their Patented Balanced Steam Valve Cylinders and Pistons are ground to a perfect fit after being bored, which makes a great saving of steam and guarantees positive working. In their new brick iron-working machine shop, they have a floor surface of 42,000 square feet. A 20,000-pound lift electric crane travels some 300 feet through that shop. They also have ample brass and iron foundries, woodworking and machine mounting department, blacksmith shop, forging works and storehouses.

All work turned out by them is guaranteed to be of the truest and best, and all those who may be interested in anything pertaining to the sinking of wells, pumping machinery, or the raising of water by air lifting devices should write to the American Well Works for their complete circular covering all these devices, which will be mailed upon request.

COMPLETING THE OMAHA POSTOFFICE.

The United States postoffice at Omaha, after several delays, is being pushed to completion. McNulty Bros., of Chicago, have the contract for plastering, and are using Kallolite Cement plaster, manufactured by the Cardiff Gypsum Plaster Co., Fort Dodge, Ia.

A NEW DIRECTORY OF ARCHITECTS.

This directory has just been brought out by Wm. T. Comstock, of 23 Warren St., New York, the well known Architectural Publisher. This issue of 1903-04 while in new form is a revival of a directory of architects by the same publisher issued for several years. In taking up the matter again a very careful list has been prepared, giving the names of the architects and their addresses and in case of firms the individual names of the partners under the firm name. By initial letters in brackets opposite the names membership of such societies as the American Institute of Architects, Architectural League, etc., are indicated.

The work in its present form has a much larger page than the former issues which it will be remembered were small books bound in red. The color of cover, however, is retained and now makes quite a presentable volume. Much new matter has also been added to it, such as lists of the "Architectural Schools," the names and officers of the different "Architectural Societies," a list of periodicals devoted to "Architecture and Building" and under the title of "Specification Index" a classified list of addresses of the various manufacturers and dealers in articles of use and interest to both architects and builders.

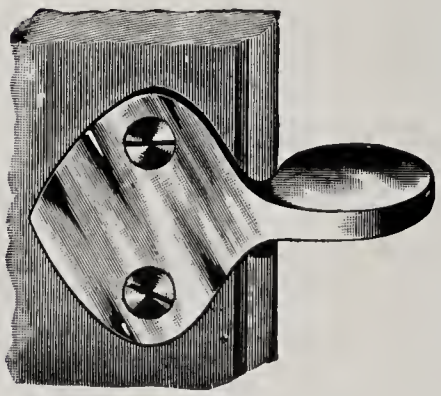
It gives not only the addresses of the architects, but much other useful information of value to architects and builders and manufacturers and dealers in building materials and appliances.

One feature we are pleased with is the large clear type used in the list of names. This cannot fail to be appreciated by one one having to address envelopes from this list.

The whole work shows careful preparation, and we believe will be heartily appreciated by both architects and dealers. It is issued at the moderate price of $2.00.

THE WILLER SASH LIFT AND WILLER HANGER.

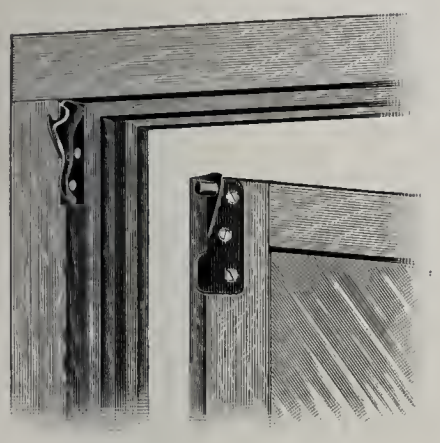
The Willer Manufacturing Company, manufacturers of inside blinds, door and window screens, Milwaukee, Wis., has just hit upon a very essential article so needful in every residence or building of any kind. They have concluded to place it upon the market in connection with their principal specialties, blinds and screens. It is the Willer sash lift, a very simple device for the purpose it is intended, yet by far the most practical that has ever been invented. If one considers the aggravating task of closing an upper sash in the window on which lifts of any kind opened to lower or raise it, this lift will and must appeal to every one, and architects especially, as the one kind to use. It is furnished in all the well known finishes to match any hardware in the respective rooms of any modern dwelling.



THE WILLER SASH LIFT.

Accompanying the illustration of the foregoing is one also of the Willer hanger for storm sash and full size screens. They are now offering to the trade this device, which they claim is far ahead of anything of the kind now on the market. The device is used to hang storm sash and full sized screens at the top so that they can be swung out from the bottom.

In the case of screens for the purpose of washing and cleaning windows and in case of storm sash for same purpose and also that of ventilation. The storm sash and window screens can be fitted and hung in place easily from the inside, obviating the necessity of using ladders to do the work on the outside. They are also easily put in place. The device is absolutely self-locking. Storm sash and window screens once in place can never be blown off by the wind. The device when used on storm sash only does not in any way interfere with the outside sliding screens; supporting brackets are secured to the upper corner of the window to the edge of the casing and do not disfigure the appearance of the windows from the outside, as the brackets are fastened securely to the face of the casings. The device is made of wrought steel which insures great durability. Architects, contractors, carpenters or house owners will be furnished with full descriptive circulars giving particulars if their hardware dealer does not carry both of the foregoing articles in stock.



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A home is well heated, both for comfort and health, only when it is uniformly heated at all hours of the day and night. A shifting temperature, from extreme heat to an uncomfortable degree of cold, is expensive in the cost of fuel, is uncomfortable, and above all, is unhealthy.

Various devices, expensive and inexpensive, have been tried during the past ten or fifteen years to regulate the temperature of our homes, and all but one has failed to meet all the requirements of the case—this one is the Minneapolis Electric Heat Regulator, and it will stand all the tests that can be applied, and it is oomparatively cheap in first cost. It is simple and as positive in action as a door-bell and a clock, for it is run by clock-work—that is, it is regulated by a battery. When it is set—and to set it means simply to turn a screw at 70° for the day temperature—it keeps that temperature in the home all day long; when it is set at 60° or 65° for the night temperature, it keeps that all night long; however, it does not keep either temperature a part of the time, and one of fifty or of eighty degrees some of the time—as the best plant ever made will do when not regulated by such a device.

When a low-priced apparatus will do this, and will save in fuel almost its entire cost every year, while adding to our homes a degree of comfort and of healthfulness not otherwise obtainable, why should it not be put on every heating plant in America? There certainly is no reason.

Mr. W. L. Klein, who was for a number of years editor of the old Northwestern Architect and of the Builder and Decorator, and who made a national reputation by his studies and writings upon the subject of heating and ventilation, says of the Minneapolis Electric Heat Regulator: "I have used this 'regulator' several years in my house, and it has never once failed to act instantly when the temperature of the room reaches the point at which the regulator is set. I consider it well-nigh indispensable in one's home."

CHANGE OF LOCATION.

The American Radiator Co., which for a number of years has had its Northwestern offices in the Guaranty Loan Building, of Minneapolis, has recently moved into its new location on the ground floor of the Walton Block, at 204 South Fourth street, where Mr. Frank R. Mason, the popular manager of their Minneapolis branch, states they will exhibit the finest line of boilers and radiators ever shown in this section of the country. With plenty of room and good light, together with first-class facilities for showing their excellent lines, we have no doubt they will be able to accomplish their purpose in a tasty and artistic manner. They will be pleased to receive all their old and many new patrons at their new location.

(*For other Matter in this Department see page XXII.*)

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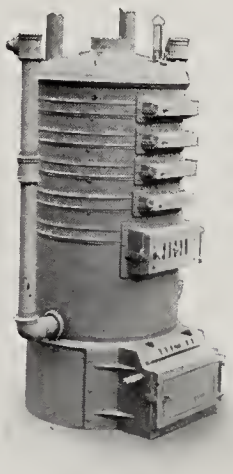

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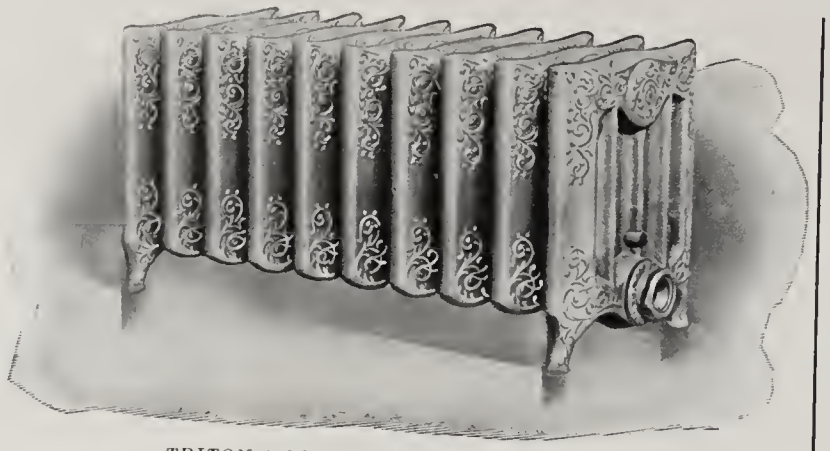

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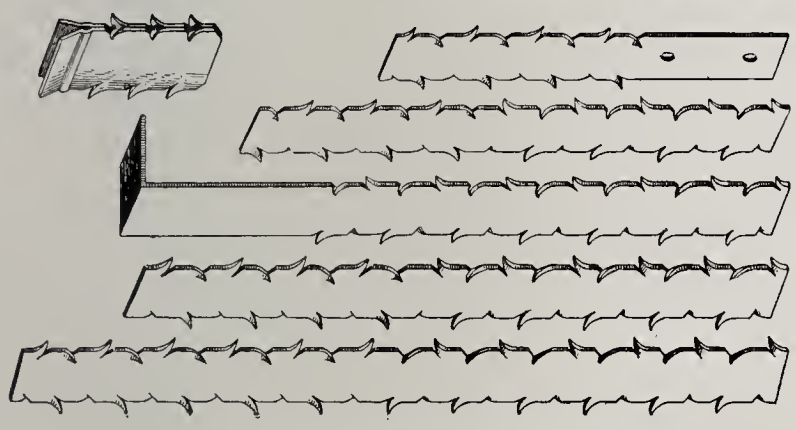

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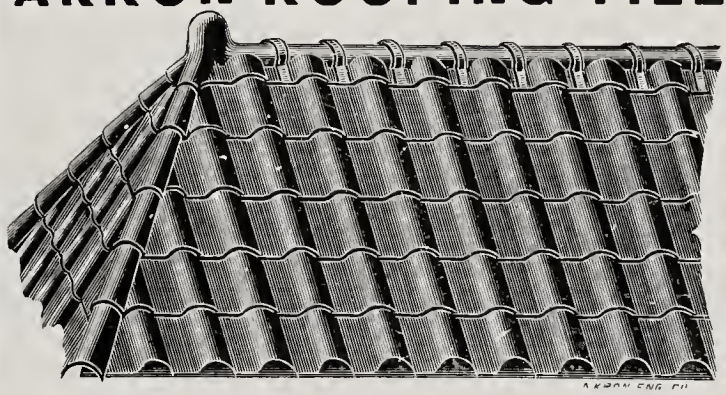

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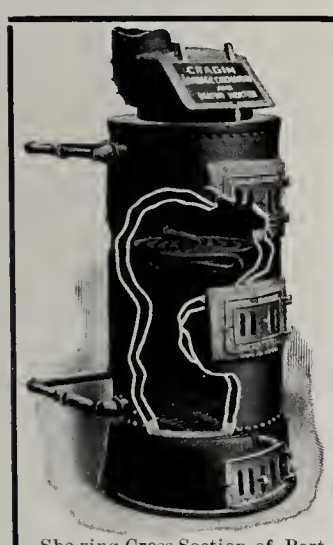

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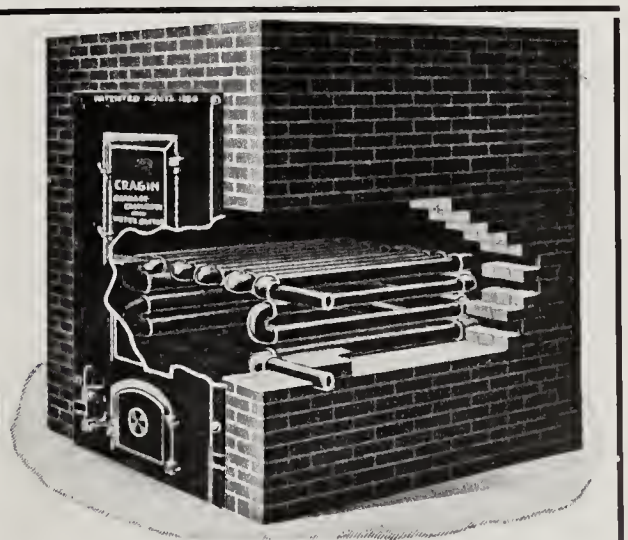

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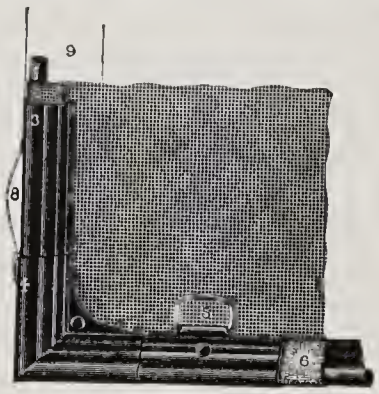
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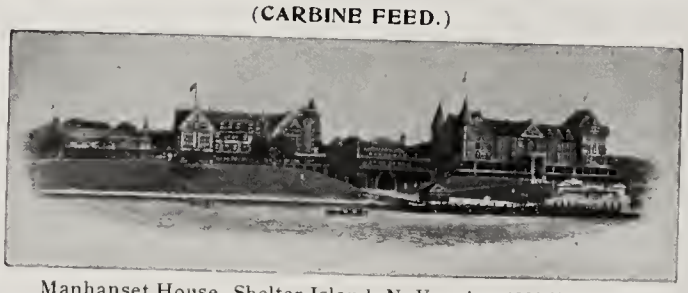
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Rumors are afloat that the price of end-matched flooring will soon be advanced two or three dollars a thousand. We wish to say that there is no foundation for any such rumor, and in this connection we ask you to

REMEMBER

First. That the United States Circuit Court has fully sustained our Patent.

Second. That we not only consented but joined in the request to reopen the case to permit further evidence to be submitted.

Third. That this action does not indicate any change in the **opinion of the Court**, as it was by consent of both parties.

Fourth. **That end-matched flooring has not been advanced in price** and **will not** be at any time, any more than is warranted by the usual conditions governing the lumber trade.

Fifth. That there is not an **inch of waste** in laying end-matched flooring, and besides this there is a **great reduction in the cost** of laying it.

Sixth. That it makes a better floor.

Seventh. That end-matched flooring will **always be sold** at a price that **insures the builder** a substantial **financial saving** over any other flooring in use of equal quality.

Eighth. That in using end-matched flooring an under or sub-floor is unnecessary, thereby saving the cost of material and of laying such under floor.

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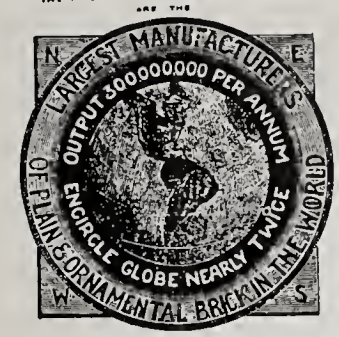

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It may be very gratifing to you, and of considerable satisfaction to your advertising patrons to learn, that though the Western Architect is published here in the Northwest, its business producing qualities extend to the eastern states as well, as is evidenced by the following letter to us by the manufacturers of "R.I.W." Damp Resisting Paint, of which we are the General Northwestern Agents, and which we have been advertising in a small way for the past few months in your valued publication.

Yours very truly,

Menomonie Hydraulic-Press Brick Co.,

By S J Hewson

New York, Sept. 24th, 1903

Menomonie Hydraulic-Press Brick Co.,
#10 North 3rd St.,
Minneapolis, Minn.

Gentlemen;-

We have your favor of the 21st inst. and contents noted.

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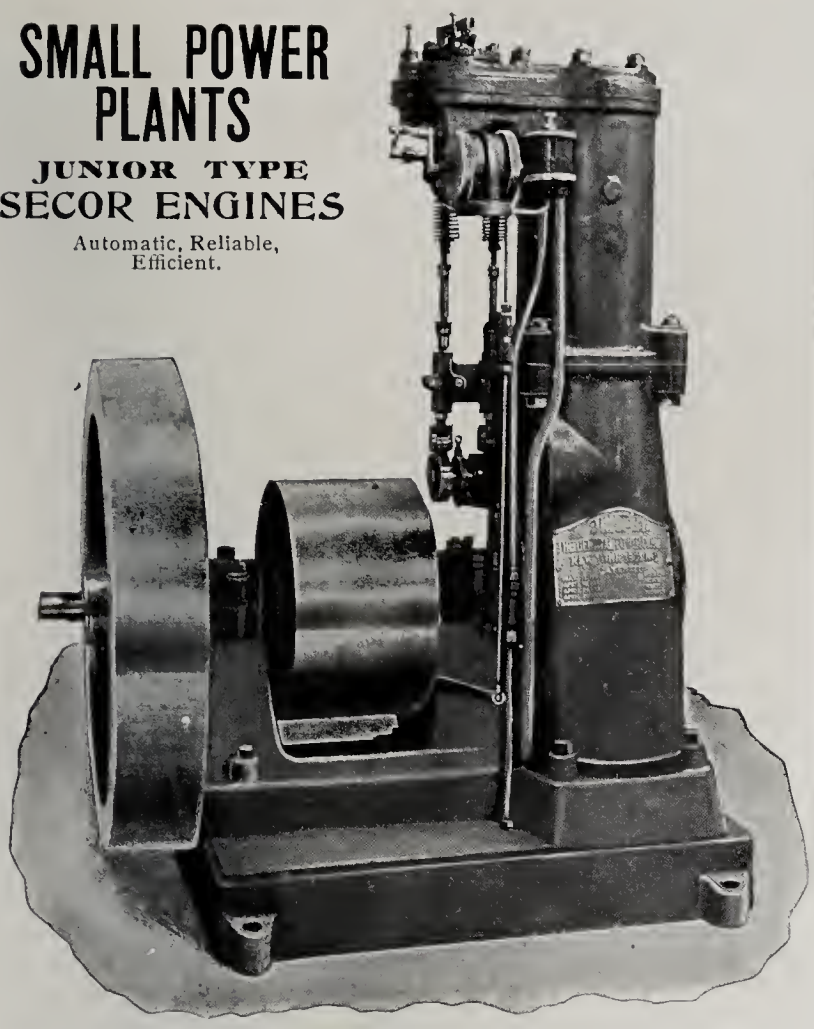

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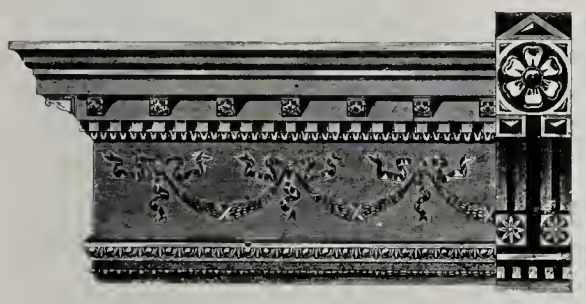

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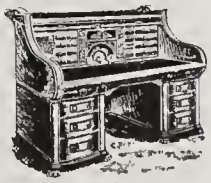

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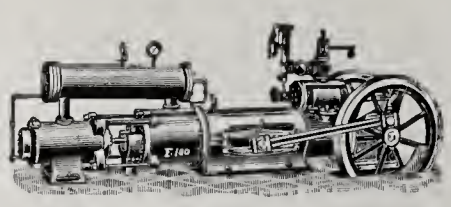

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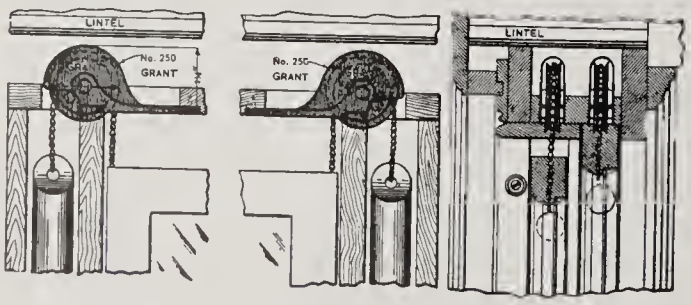

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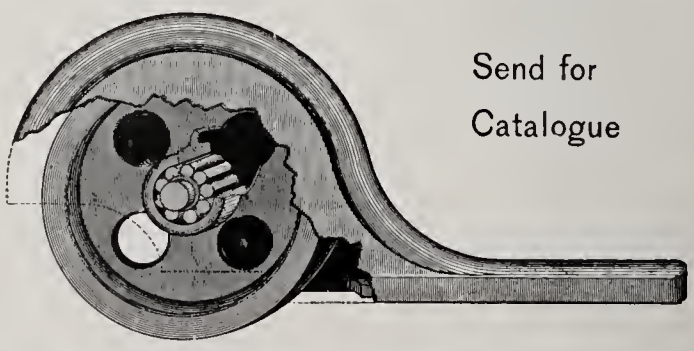

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DEVOTED TO ARCHITECTURE AND ALLIED ARTS

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OFFICERS of the Minnesota Chapter A. I. A. for the coming year are: W. C. Whitney, Minneapolis, President; E. P. Bassford, St. Paul, Vice President; E. P. Overmire, Minneapolis, Secretary and Treasurer.

THE principle of waste shows more vitality in the plumbing craft than in any other modern calling. It must have been twenty years since a very scientific series of tests led Col. Waring to discard the "running trap" and re-venting of traps generally. Since that time plumbers without number have taken out re-vent pipes entirely plugged by grease and other matter, while all know that for sink wastes, at any rate this remedy for siphonage, if remedy it is, is only temporary. Yet plumbers have succeeded in retaining it in every building ordinance, so far as known. So well intrenched is this "plumbers' graft" that the current number of a well-known magazine (the October issue of Country Life in America), which undertakes to tell all about country houses, has an illustration of the way plumbing should be done, showing every complication of the waste-pipe system known to man.

MR. EDWARD ATKINSON must have surprised his friends who read a paper recently prepared by him for the edification of a learned British society. For a man who has done so much to prevent and to promote the prevention of waste, and particularly waste by fire, to take the very philosophic view that he takes in this article about our annual contribution of twenty-five or thirty million pounds sterling to the ash-heap, is somewhat puzzling. Not only is his name associated with prevention of fire waste, but his opposition to other great wastes, especially war, have made his name known among those who scarcely know his connection with mill insurance. But now he tells Englishmen in all complacency that our fires are not so bad for us after all, that our buildings can as a rule only be regarded as temporary make-shifts anyway, that growth and changes in business render most of them obsolete or little better every few years, and that fires often clear the way for better things that are needed, hastening changes that might otherwise be postponed unprofitably. So cheerfully does he put forth this comforting view of fire losses that his friends will begin to question why he has all along been making such a fuss about bad building methods.

SCARCELY a month has passed since we heard of an advance of wages agreed upon between window-glass workers and manufacturers which was to make the public pay more for glass in spite of the machines, the co-operative factories and what not. Now the glass trade journals tell a most doleful tale of slump in prices, of reduction in wages of more than twice the boasted rise, and taken all in all seem unable to even whistle to keep up their courage. It looks as if the consumer might yet get something like his money's worth in this direction.

THIS department has commented upon the fact that while the securities of the Steel Trust were to be had for much less than formerly, consumers of its products were getting no corresponding relief. Stock quotations would indicate that something like $700,000,000 of water has been squeezed out of the property since its first floatation, but those who think that this indicates any such fate for the corporation as has overtaken so many of the industrial concerns that have failed lately to monopolize their lines of production, are doomed to disappointment. In fact, everything points to a further fortifying of the monopolistic nature of this concern, and that the "squeeze" that has been going on so long is for the purpose of frightening the small holders and gathering in their holdings by the big ones. It is only necessary to learn the nature of the rival properties bought up by the trust of late—only such as had good coal and ore lands—or to get quotations on such leading necessities in building as tubes and beams, or to watch preparations for ship building and kindred raids upon congress, to convince one that this trust, at least, "has its feet on the ground," in the sense that means effective monopoly.

ENGLISH statesmen who find their popularity waning dangerously have, as everybody knows, made an effort to undermine the fiscal policy which has been in vogue there for more than a generation. Sheffield has been selected as the best point for the new propaganda, because foreign sales of her chief product, cutlery, have fallen off greatly for a decade or more. Possibly if Sheffield were to send a delegation over here to learn how her goods compare in temper, style and price with those of some German, to say nothing of some American makes, to be found on this market, more might be learned than by a discussion of fiscal policies. English Portland cements used to have the American market pretty much to themselves, but to all appearances England now furnishes but a very small part of the imported cements. If consumers get the notion that American makers do not furnish good enough cements, they get German, Swedish or French goods, but rarely English. And this condition has been brought about by the quality of the goods, in face of the fact that the English had the field and are more conveniently placed on commercial lines. England has a choice line of statesmen just now, whose advice to her people will be looked upon with complacency by their competitors, who will keep right on advertising and looking after the quality and prices of the goods they furnish.

MR. CASS GILBERT announces that he has secured for the Minnesota State Capitol one of the most ambitious and promising decorating schemes ever attempted in this country. A quarter of a million dollars are to be expended under the direction of John LaFarge, Edwin H. Blashfield, Edward Simmons and others.

THE fight for self-government, for fair play in taxation and for others of the equities and privileges of good government which the people of Cleveland under the leadership of Mayor Johnson have been making for several years, is among the most inspiring sights of modern civic life. It is therefore peculiarly fitting that this people should be the first to see the unfitness of the haphazard plans of American cities for the setting of public buildings, and the first of American cities to propose such a rearrangement of her streets as to give her public buildings proper sites and approaches. This action of the people of Cleveland, coming as it does with their struggle to free themselves from the rule of bosses, courts and legislatures who have little or nothing in common with them, takes one back to the breakup of feudal institutions and the establishment of free cities.

This splendid project for improving public buildings and approaches, the whole forming a city gateway unequalled in ancient or modern times—seems to take on the character of a grand memorial to the new ideas of popular government which Cleveland, before all other American cities, is striving for. The idea of making the railway station the beginning of all things in the scheme has never been carried so far before, but it is the obvious thing to do under the circumstances; and in general the re-platting, if carried out as recommended, will leave little room for criticism. Details, however, will not be likely to fare so well as the general scheme. The report of the members of the Board of Supervision, Messrs. Burnham, Carrere and Brunner, to the Mayor and Board of Public Service is profusely illustrated with designs and old-world examples, all handsomely done, except that the proposed street arrangements are reduced too much in the reproduction. The Board devote much effort to pleas for preserving land for the railways, at the expense of a proposed public park between their present property and the lake front. Some of their arguments against this park are amusing—the weather will be so inclement north of the tracks, or the lake front is so undesirable for a public park during parts of the year. The designs of a few of the buildings may well stand, but it is to be hoped that the suggestions for but few of them or few of the decorative features will ever be carried out. Formal trees and things are carried to a ridiculous extreme, and the general recommendation, "that the designs of all the buildings of this group plan should be derived from the historic motives of the classic architecture of Rome," is as inappropriate to the Cleveland idea as could well be expressed. The report is remiss also, in that it fails to assert that to preserve the beauty of all this, and to place the city abreast of European cities, the railroads will need to substitute some other power for soft-coal-burning locomotives.

A FIRE PROOF WOODEN FLOOR JOIST BUILDING.

The Brickbuilder tells of a 6-story furniture store in Chicago built years ago with wooden joists on I-beam girders and cast columns which has withstood several severe fires in which there have been large losses in stock, but no damage to the building worth mentioning. The enthusiasm of the Brickbuilder even leads it to use the head lines "A building with wooden floor joists that is absolutely fire-proof." This and another similar building were designed by Adler and Sullivan some twenty years ago, and both have done well. A cut helps to show the construction, which was certainly the best of its kind and must have been well carried out, for the building has not had the advantage of inclosed stairways and elevators—features which have contributed so much to the success of factory building of the more advanced type. Columns and I-beams are well covered with porous terra-cotta tiles, while the same material is fastened to the under side of the wooden joists. These appear to have been spaced to suit the tiles, and one defect of similar work was avoided—the tiles were applied directly to the under side of the joists, thus closing up each space between joists, instead of making all the concealed spaces of a floor into one, by suspending the tiles a short distance below the joists. This latter method, it will be recalled, was employed in the old Minneapolis Tribune and Lumber Exchange floors.

In the coming struggle between hollow tile and concrete fire-proofing, the experience of this Chicago building may be pointed to with pride by people interested on the tile side.

The City of Mexico, already comparable with the fine capital cities of the world, is to be still further embellished with beautiful buildings. Chief of these will be the legislative palace, now under construction. It is to cost the Mexican government about $20,000,000. It will be in the renaissance style, and its ornamentation is to be most elaborate and artistic. Besides the legislative palace, the Mexican government is preparing to erect a postoffice building and a building for the war and navy departments. Not less than $50,000,000 is expected to be the outlay on the elaborate public buildings now planned for.

The Pine Tree state probably will furnish one of the most picturesque features of the big fair, if the ideas of the commissioners appointed by Gov. Hill to arrange for Maine's representation at the St. Louis exhibition are carried out. It is proposed that the state building take the form of a log cabin and that it be filled with mounted fish and game, paddles, canoes and trophies of the chase. The commissioners are confident that their plan will be carried out, but before it is finally adopted it will be submitted to the larger boards of trade and the state board for consideration. The plan has the approval of the Portland board of trade.

ARCHITECTURAL LEAGUE MEETING.

St. Louis, Oct. 6, 1903.

The sixth annual convention of the Architectural League of America brings a goodly number of delegates, who will take home most favorable impressions of their hosts, the local society, the city and the Louisiana Purchase Exposition.

With so much to be seen, the local society are to be forgiven if not commended for their resolve to omit the usual exhibition of drawings. The city itself is a pretty good exhibition to the visiting architect, and with the half-grown Exposition, with its palaces in all stages of completion, and particularly the completed buildings of the Washington University, he feels that he has had plenty of sight-seeing for the time allowed—all that his money entitles him to. Indeed, it is worth quite a trip to gather with so large and so fruitful a body as is the local society. Their condition in ordinary times is one of health, and the work of the exposition has brought to the city for the time being a contingent that adds an element of interest beyond mere numbers.

The afternoon of the 4th was spent in a tour of the city by special trolley train, with little branching walks through the "Places" for which St. Louis is famous—pretty residence tracts, neatly parked and marked off from general traffic by architectural gateways, some of which are so beautiful that they make one forget the residences along the parkways.

The day of the 5th was largely devoted to the tour of the grounds of the Louisiana Purchase Exposition, which include, as every one knows, the new buildings and grounds of the Washington University, which have been leased to the Exposition for its purposes. The authorities of the University, by the way, seem to have driven a fairly good bargain, for they admit that two of their new buildings are built from the rentals received.

The architecture of the Exposition, being in all stages of completion, could hardly have been visited at a time to have interested the League more; not only were all phases of its development to be seen, but the whole was yet crude enough to excite imaginings as to the outcome.

The "palaces" for exhibition purposes are said to cover some twenty acres more than those at Chicago. The general scheme of the hill and cascades is familiar to all. The buildings are not to constitute a "white city." Enough of them are already complete as to the exterior to give the management hopes that all will be ready for the exhibits in time, and to give the visiting architects a hint of the final appearance. About this there is less enthusiasm than might be wished. A misfortune of each succeeding venture of this sort is the belief that it must exceed former efforts in size. One can't help the impression that that 20 acres at St. Louis might have been better out of doors than under roof, nor can he help asking if all those palaces are needed for a complete vision of beauty. When one turns from the view of the site of the hill and the cascade and retraces his steps among the vast stretches of "palaces" whose names it is a struggle to recall, he can hardly shake off a feeling that

these big things are "cluttered up" too much. For this the designs are at fault in part; there is too little that is distinctive about them. After wandering for a time in all this one realizes that there are times when one needs a relief from classic columns and pediments—that Mr. Sullivan's transportation building in Chicago was wise in its way. After an hour of these "palaces," one would gladly return to the quiet quadrangles of the University buildings.

Sculpture is in place to some extent, some of it very promising, but some of the decorative figures find their spandrils as uncomfortable as ever.

The League members were entertained by the Exposition management at the grounds, welcomed by Mayor Wells, by President Francis and by Director of Works Taylor. Lunch was followed by after-dinner talks, Congressman Tawney, of Minnesota, being among the conscripts.

The Exposition will be immense, interesting, and the population of the Louisiana Purchase mean to patronize it well. The M. & St. L. and Wabash will take the crowds from the upper part of the Purchase quickly and comfortably and land them right at the gates.

The management have anticipated a want of hotel facilities, and are putting up a two thousand room building on the grounds to relieve any pressure that may be felt on those lines.

The evening meeting of the 5th was held at the Academy of Fine Arts, where President Lamb, Claude F. Bragdon and Hugh M. Garden addressed the League on the "New Thought in Design." Here, as in the address of President Lamb to the League on the morning of the 6th at the rooms of the St. Louis Chapter A. I. A., appeared the true reason for being, the spirit of sturdy protest which makes the life of the League worth while. The leading men of the League are surely not men who believe that architecture can only be arrived at by the application of classic columns and pediments, or that fair play in competitions consists only in ethical codes and adherence to schedules. F. G. C.

THE IMPOSSIBLE CLIENT.

A prominent New York architect writes in Country Life in America in a humorous way about his experience with clients. We would suggest that if a client will only test his architect as he does his cook he says he will have his architectural pie properly mixed, and thereafter he can live as they did in the old story books—in peace. But he's afraid of his cook. He will discuss with his tailor the cut of his coat and the cloth, but dares not presume beyond that. Neither will he advise with his doctor as to the proper quantity of this or that. Nor will he request of his lawyer an elaborate brief, stating that he will not pay if the ribbons are too red. But he will call on his architect, spend six hours during his busy day, giving him points on architecture that would put Prof. Ware in the shade. No, let's give it up. Clients cannot be handled—they know too much.

TO THE STUDENT.

From the work of the Great Architect of the Universe to that of the least of His Creature—architects—the same elements prevail: form, proportion, harmony of colors, lighting, ventilation and heat. Down through the ages man has implanted in him a desire to be protected from the elements. From the days of the cave-dwellers has it been so. Architecture is an art—abused sometimes by incompetents—and still it is high art. No effect can be produced without its having been preceded by design. The architect is a designer. There are poor designers and the result of their planning is a bad effect. But many believe that there is no other profession in which the standard of excellence is so high, on the average, as in that of architecture. Some surpass others, just as in any other walk of life.

So it will ever be. One may design a great cathedral, another could only design a simple chapel. Some minds can create great things, others smaller. But each may do his work creditably—acocrding to its character. An author says, referring to architecture: "It can be ranked with the fine arts so long only as it is practiced in accordance with the harmony discovered in nature. As an example, take the bands of the Corinthian column with its rows of water leaves, acanthus and the tendrils and honeysuckles against the middle of the abacus, which are the crowning beauties of the design. How like unto the blasted trunk of a tree, up which a vine has grown, not throwing out its leaves and flowers until it had climbed above the darkening surrounding timber growth which prevented the life-giving sun's rays to stimulate leafage and flowers.

To the struggling young architect the words of Daniel Webster might fitly be spoken or written: "There is plenty of room at the top." These were spoken by the great statesman to a struggling student of law who was discouraged. Webster's words proved to be a stimulant to a faint heart. This is a day of specialists,—in law, medicine, engineering—in almost all pursuits. To the student of the great art of architecture the writer would say: Choose especially one class of work—architecture, that of dwellings, public buildings, mills or factories—any special branch, and perfect yourself in the designing and construction of that particular class. But do not fail to remember that if one should be accepted all others should not be rejected. Seek to improve upon what exists. Perfect yourself. Study Nature and her divine architecture. It is an open book to be read with advantage by those who open their eyes and look at their surrounding,—and above them.

The architect is not necessarily an artist in the painting or sketching sense, but he is an artist, nevertheless, and has general artistic insight as well as creative ability.

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Bertrand & Chamberlin, Architects, Minneapolis.

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THE WOMAN'S MAGAZINE BUILDING, ST. LOUIS, MO.
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AGRICULTURAL BUILDING, MINNESOTA STATE FAIR GROUNDS, HAMLINE, MINN.
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STABLE OF LEWELLYN E. JAMES, KANSAS CITY, MO.
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PERGOLA AND EXEDRA IN GARDEN OF CLINTON MORRISON, ESQ., MINNEAPOLIS MINN.
Wm. Channing Whitney, Architect, Minneapolis.

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VIEW OF FOUNTAIN AND PERGOLA IN GARDEN OF CLINTON MORRISON, ESQ., MINNEAPOLIS, MINN.
Wm. Channing Whitney, Architect, Minneapolis.

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DESIGN FOR A RESIDENCE.
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THE APARTMENT HOTEL.

At present in New York the special feature in house-building is the apartment hotel, which is distinguished from the ordinary house-keeping apartment building in the following way, says a leading exchange:

These new housing arrangements, hitherto confined to the theater and hotel district, are now going up in various parts of Manhattan borough and are taking on most elaborate and luxurious features and extensive proportions. They appeal especially to people of considerable incomes, single men and women, childless couples, and widows or widowers with one or two children, who wish to avoid the vexations of housekeeping without giving up the comforts and seclusions of a home, and they are proving to meet a large want. They can best be described in their general characteristics by quoting from the advertisement of one of them, as it is appearing in the New York papers—this particular apartment hotel being placed on Broadway near Seventy-third street, or in a pretty expensive real estate locality:—

The housekeeping and non-housekeeping apartments are so ingeniously planned as to make combinations of any number of rooms feasible. There are bachelor suites of one room and a bath for $600 a year; two rooms and a bath for $800 a year and upward. The housekeeping suites are from five rooms and a bath and servants' toilet to 20 rooms and four or five baths and toilets, ranging from $1,600 a year to $8,000. All housekeeping apartments have private elevator, refrigerator and hygienic ice water on tap. Housekeeping and non-housekeeping apartments may be had furnished and unfurnished, and with or without chambermaid service. Servants supplied when wanted. There are billiard and social halls, a barber shop, telegraph office, private laundries, and the largest and finest public laundry in New York, and the most magnificent baths in the city are now being built with a salt water plunge 95 by 35 feet; cut out of solid rock and lined with Italian varied statuary marble. The restaurant and grill room are the handsomest and best appointed in New York City, and the table is the best and the prices moderate.

It is an immense structure, and the prices and other features will indicate the measure of easy and luxurious living which the apartment hotel aims to furnish in that part of the city. Meals in these contrivances are served in the rooms if and when desired, and by the week or card, the charge ranging from $10 to $15 a week or more. The large number of apartment hotels now going up shows their popularity as well as a growing disposition among New York families of means to abandon housekeeping in its complete and independent estate.

Architects and builders in Salt Lake, Utah, are interested in a new patent frame for buildings which is being used on some new buildings going up about the city. The upright pieces of these buildings are made entirely of the new frame, which consists of short iron studs. These are fitted together so that an upright piece of any length can be made. The joists rest upon this frame work. The edges of the stud have a row of teeth upon which metal lathing is hung.

PROBLEMS IN STRUCTURAL WORK.

"The structural problem of all architecture is simply the building of walls and roofs. In antiquity but two systems were known of roofing a space between walls or piers (which are bits of walls shorter than their height) or columns (which are round piers). These two systems are of the beam and of the arch or vault. The first lays from one support to the next or opposite support single pieces of some material having sufficient cross strength,—wood, stone or metal; the second builds curved roofs of many pieces of brick or stone. These two systems of roofing divide all styles into clearly marked groups and furnish a pass-key to the intricacies of their historic development."

"It is an unfailing rule that, with the changes due to progress, the structural forms employed in the architecture of one age become the decorative features of the succeeding age. The arts of design can never quite keep pace with the changes of condition; the only way they can meet them is to adapt the old and familiar forms to new ones."

"In these as in many other departments of design, architecture is entering upon new paths and creating new styles of its own, precisely as in the middle ages; because in an increasing degree it is subordinating the use of traditional and borrowed forms to the demands of convenience, common sense and good taste. If we see historic forms used with little modification in this and that class of buildings, we generally find that wherever this produces truly pleasing and artistic results, it is because in these cases the demands of modern buildings impose no necessity of radical change in their use, and because these forms still meet the needs of the problem better than others that the architect knows or can invent."

These extracts from a short treatise or lecture by Prof. Hamlin, of Columbia University, entitled "The Milestones of Architecture," have, even without the title, such savor and promise as to breed desire on the part of the knowing reader for the whole lecture. And if he follow out his desire he will come up with one of the wonders of modern publishing. This lecture, with 25, upon the whole, exceptionally well chosen illustrations, is not made up into a book and sold at a dollar or two, but forms the August issue of the Brochure Series and is to be had for 10c, with all the excellent qualities that mark the printing of this little serial.

Many a reader will wish that, with somewhat fuller illustrating, an edition of a million copies might find its way into the homes and clubs of the people who are now groping among the "five orders," the "round" or "pointed" arches, the "flamboyant" or the "perpendicular," in the fond belief that they are learning about architecture. But to place this little treatise where it is so sorely needed would cost much in advertising

MEMOIRS OF A TRIP TO NEWPORT.

By E. P. Overmire.

Time is a great artist. It is not too much to say that time is the greatest of artists. With his magic brush he tones down man's crudities, and brings about results that are the despair of his poor, weak, mortal imitators. Just so does he tone down and smooth away the rough edges of events, so that a retrospective view, with sufficient perspective, appears to memory as a masterpiece, with all the delicacies of suggestion that a spice of romance adds to the original composition.

It is in such a light and with such adjuncts that the writer recalls, with ever enhancing pleasure, the memories which envelop a most enjoyable little excursion taken some fourteen or fifteen years ago in a goodly company of leading lights in the Boston Architectural Club to Newport, R. I., the annual scene of New York's representative and leading social activities. The B. A. C. was young in those days, in its first year, in fact. We had a man of energy as our first president, Mr. C. H. Blackall, who brought things to pass. This Newport trip was one of the early treats to which the Club was invited. Some twenty odd members responded, among them such men as R. D. Andrews, John G. Howard, W. W. Bosworth, H. W. Northey, H. T. Pratt, I. H. Jones, H. W. Browne, and Sanford Phipps, most of whom have distinguished themselves professionally in one way or another, since that time.

Leaving Boston at an early hour we arrived at Newport about 10 o'clock, having passed en route through Quincy, where Richardson's little masterpiece holds forth, and through North Easton, where are located his town hall and library, both of which stand alone in their respective classes. It was the writer's privilege to have as a companion en route Mr. J. G. Howard, whose precepts and observations have been graciously remembered. We were met at Newport by a local architect, Brown by name, I think, who had secured for our party the entree to a number of the very best "cottages" there, he acting as our guide throughout the entire day. The old town was sufficiently interesting, memory recalling numerous ancient, weathered veterans of the colonial period when so much of real and lasting merit was produced. A particular memory is that of the town hall, and one old character therein, in particular, who seemed part and parcel of the place, causing youngsters like the writer to rub his eyes and wonder whether he had gone to sleep, or whether Rip Van Winkle had appeared suddenly in the flesh.

After a pleasant drive of some length, we were deposited in the porte cochere of the "cottage" of Mr. Cornelius Vanderbilt, which was destroyed by fire several years afterward. The accompanying photographic views give a good idea of the appearance of

the ivy-clad structure at that time. We were pleasantly surprised to find that Mr. Vanderbilt was there in person to do the honors, and right regally did he acquit himself, showing us all the principal rooms and apartments of the place. The dining-room was probably as impressive as anything we saw, it being an addition to the original house, the walls being framed in with huge vine-entwined columns of antique oak, with highly enriched cornice and coved ceiling, leading up to a magnificent art glass ceiling-light, which shed a most gracious light over everything. Between the columns the walls were covered with stamped leather. The general impression was one of dignified and impressive magnificence, decidedly the best in the house. A point here of general attractiveness to the visitors was the sideboard, which filled one end of the room, whereon was spread everything heart could wish, and in lavish profusion. It goes without saying that ample justice was done here, as we had no opportunity for lunch until well into the afternoon. The fire, which later destroyed this palace, originated, I believe, behind the elaborate wood finish of this dining-room.

The hall extended through two stories, with galleries on three sides, and was sumptuously furnished, opening out onto broad-sheltered piazzas, also luxuriously furnished, from which enchanting views were to be had of the cliff walk and Atlantic ocean beyond. Opening off the hall were the drawing-rooms and library at one end, and a very dainty breakfast-room, elliptical in shape, decorated in white and gold and furnished in the Louis XVI. style. Truly, a magnificent establishment, to which the name "cottage" was a decided pleasantry.

After leaving the palace we adjourned to the stables, wherein were accommodations for thirty or forty horses, and the endless array of vehicles of every description, from the dog-cart for the children to the coaches, four-in-hands, etc., automobiles not being dreamed of then,—a model establishment from every point of view, clean and wholesome in the extreme.

Our attention was next directed to the children's play-house, a most complete little affair, with a huge

fireplace in the living-room with hanging crane and hobs after the traditional style. Adjoining this were dining-room and kitchen, all finely appointed with furniture made especially for the place, the kitchen, in particular, being most interesting with its complete array of cooking utensils, all of special design and make, and all as neat as a pin. One could easily imagine what a source of pleasure such a play-house would be to the average child, whose ideas of such things are apt to be limited to crude affairs made up of drygoods boxes and waste lumber, with no thought of real comfort or convenience; and yet, it is altogether probable that these home-made institutions are a source of infinitely more down-right pleasure than all the little palaces built without stint and furnished so regardlessly of cost. We all have our compensations, if we but know where to seek them.

After a drive taking in the "old mill," which tradition says was used for a fort and for several other purposes, the air of romance and uncertainty being a large factor in its resources, we were taken to the Van Alen estate, which rivalled the Vanderbilt estate in many respects. It is a much larger place, surrounded by a wall and completely retired from public gaze. Our escort was in a position to talk entertainingly here, as it was erected under his supervision, being a reproduction of an ancient English country seat.

After a considerable drive through winding driveways, we drew up in front of the main entrance of the mansion, where we were met by the housekeeper, who conducted us all through the building, which was in the Elizabethan style, with large central stair-case

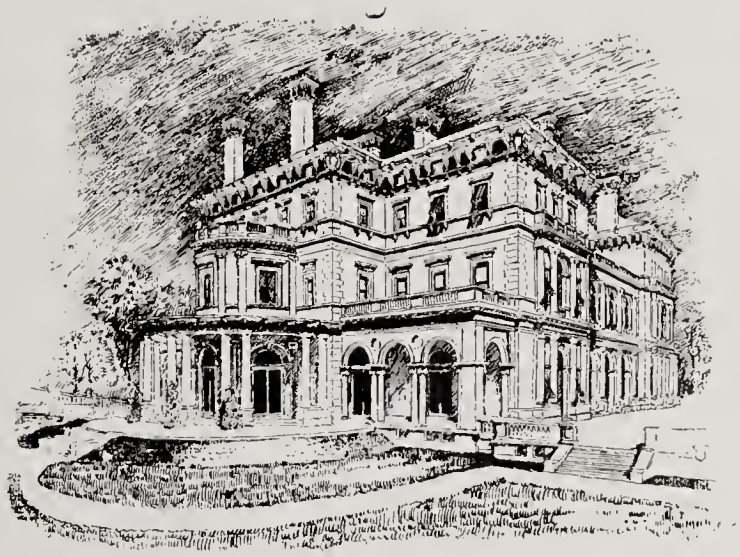
hall with three wide flights of stairs running up to second and third floors. To the right an immense ball-room opened, and at opposite end were the parlors and dining-room, from which a large inclosed veranda opened through French windows. On this veranda was set a large mahogany dining-table, bountifully spread with every conceivable luxury, a picture that a hungry band like ourselves will ever remember with keenest longing. The ball-room was high-ceiled, with coved ceiling done in arabesque in high relief, the walls panelled to the cove in dark English oak. Deep casements opened out at the ends and side, and two large fireplaces completed a very sumptuous room, reminding one of Haddon Hall.

In this house we saw the sleeping apartments of the family, the most interesting being the guest-chambers and that of the owner, the former very delightful apartments, with the leaded casement windows, belonging to the period and sumptuously furnished, of course. It was here that the housekeeper spoke of the difficulty of keeping the rain out when storms came from the side toward the ocean, the leaded glass being anything but waterproof. The owner's rooms were particularly interesting because of the quaint furnishings, among which was a frieze of Hogarth's drawings encircling the room. Any one who is familiar with Hogarth will understand without further words how attractive were these pictures to the visitors.

The Van Alen stables, while less extensive than the Vanderbilt stables, were fully as interesting; the workmen were engaged at the time of our visit in setting a very substantial floor, consisting of hollow terra-cotta blocks made with deep V joints, set in cement, the first ever seen by the writer. The rear view of the mansion was fully as interesting as the front, and seen from a distance was immensely gratifying to one who loves repose and dignity.

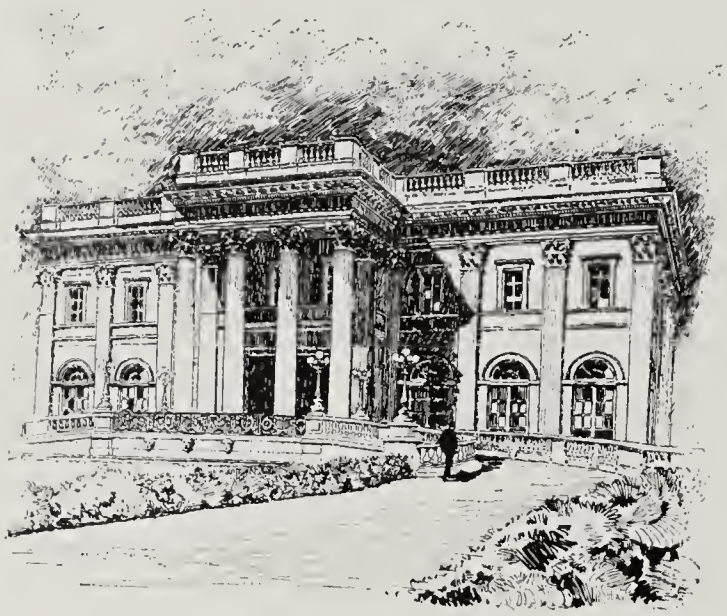
As we were preparing to leave, a smart trap drove up with Mr. Cornelius Vanderbilt and ladies, whom we saluted in princely fashion, as a matter of course.

Had he not treated us in such fashion a short time previously, when his guests?



After inspecting several other residences of minor importance, we adjourned to the best hotel the city afforded, and being an hour or two late we had to wait a considerable time till a repast could be prepared, but we were near famished ere this and ate contentedly what was set before us. After refreshing ourselves, we visited the Casino where we posed for a photo, which proved a failure owing to the poor light, it being a gloomy day overhead; more's the pity. That photo would be prized to-day had it been a success.

Visits to several floral establishments came next, after which we drove to the beginning of the cliff walk, which is the consummation of the trip, to every well ordered tourist party to Newport. This we took in leisurely, feasting our eyes alternately on the magnificent residences on the left hand and upon old ocean and its numerous coves and inlets, breakers and beaches, on our right hand. Among the palatial estates passed in review were those of Cornelius and F. W. Vanderbilt, the partially completed marble pal-



ace of W. K. Vanderbilt, since then the scene of a notable wedding between the Duke of Marlborough and Miss Vanderbilt, and the estates of H. A. C. Tay-

lor, E. D. Morgan, Miss Wolfe, Robert and Ogden Goelet, Mortimer Brooks, O. H. P. Belmont, and a score of others, whom memory fails to recall in particular.

This practically concluded our sight-seeing at

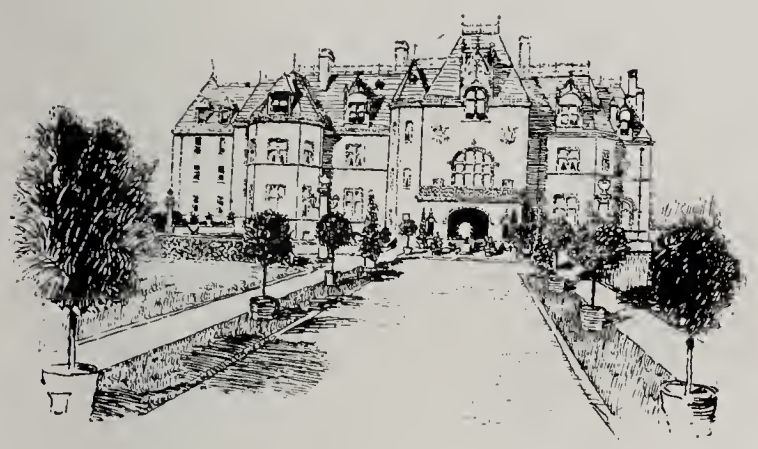
Newport, and we were so surfeited by this time with magnificence that our animal natures began to assert themselves once again and to demand refreshments.

As we were promised a feast in the dining-car en route home, with ample time to discuss it, with great impatience did we wait an hour or two longer. We took steamer for Wickford Junction just at dusk, leaving Newport a host of twinkling lights far behind us,

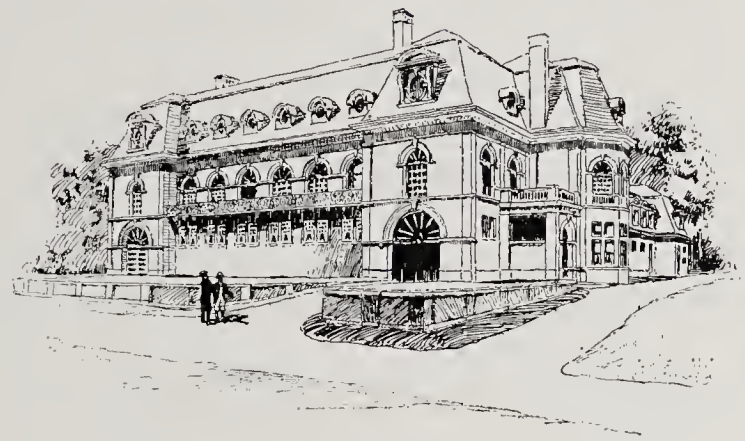
and made our train at the Junction, and after a short wait filed into the dining-car, which we owned during the remainder of the trip.

After a feast fit for the gods, the optimistic nature of President Blackall asserted itself, and the result was

a series of toasts, songs and speeches that would have brought smiles and tears to the face of a wooden image.



We arrived home about 11 p. m., tired out, but delighted with a trip whose memory will be perpetual and sweet in the memories of all who were so fortunate as to participate in it.



THE GATES TO GROUNDS OF MR. OGDEN GOELET, NEWPORT.

The sixth annual Congress of Architects will be held in Madrid, Spain, in April, 1904. The quarterly bulletin of the American Institute of Architects for July contains a brief outline of the programme of the sessions and excursions, together with rules of details of the congress.

GRAINING VS. HARD WOOD.

At the twelfth annual convention of the Ohio State Association of Master House Painters and Decorators held in Cleveland, in July, one of the interesting papers presented was that of J. W. Luthe of the city named, dealing with the subject of "graining." Among other things the author said:

Graining, or imitating hard wood or all kinds of woods, as the grainer is often called upon to do, is a somewhat slow and tedious process, requiring artistic taste, patience and a general knowledge of the grains of the woods, also the various materials and tools used for the work.

The old time graining was generally done with oil color, on account of its low price per yard to the trade and also the simple method of applying the colors and the few tools required.

Oil graining can be made very artistic, but owing to its slow drying and danger from cracking, due to using too much oil, wax, soap, fat graining color, or too heavy a coat of grazing, is not considered the proper process of graining in these advanced times. As most of the graining is to imitate the hard wood, oil graining cannot successfully be used, and for that reason distemper or distemper and oil (called composition graining) is more adaptable, as the colors can be toned and blended to match the hard woods more readily than oil colors, also that there is less danger from cracking of the varnish, and the job can be done much cleaner, no dust settling to the work. The job, if a small one, can be varnished the same day; the only difficulty being that most grainers do not keep their work clean, probably due to poor training or to being slovenly in their work.

Distemper colors can be used for all kinds of graining, oak, ash, butternut, walnut, maple, cherry, rosewood and mahogany; in fact, every known wood, if properly done, will make a fine, artistic job, resembling hard wood more than oil graining and more durable, while with the oil graining only two or three varieties can be grained, and if a standard grade of varnish is used all cracking is avoided.

Grounding in is as important for a good job as the graining or varnishing. Too much cannot be said on that part of the work, as it is often done by an incompetent workman, the ground being either too oily, ropy, fat or the work is not sandpapered, color not strained and probably the color ten shades off and done with very poor tools. Grainers meet these objectionable circumstances only too often.

The ground for all graining should in all cases be flat, with no oil, except the oil in the lead and colors as ground by the manufacturer, and the grainer should at all times use as little oil as possible for his work. In conclusion let me say, ignorance and haste have ruined not only the graining, but the reputation of the grainer, master painter and varnish maker more than willful dishonesty of the master painter, simply because the painter was determined to finish the job in too short a time, not regarding conditions, such as weather, undercoating, the amount of paint, and the various materials that are generally used on the work.

NEW EXPERIMENT ON DEALING WITH LABOR TROUBLES.

The extraordinary and melancholy story of Parks is, luckily, not a typical story. Few labor-unions have such leaders, and the method of "graft" has not been generally adopted. Every man who really knows labor-union life will agree that the experience of the ironworkers and housesmiths in New York is exceptional. But in New York and in Chicago the taking of money by extortion has come somewhat naturally to leaders of many sorts of organizations during the years of corrupt police practice.

But the activity of men of the type of Parks, most of whom have been less daring and reckless than he, has caused a new step to be taken in several cities in the defensive organization of employers. The Chicago Employers' Association, under the management of Mr. Job, recently Labor Commissioner of Illinois, is undertaking a service to the community that may have important results. If an employer, who is a member of the association, has a strike, the association, if it take up his cause, saves him from defeat. Other employers will do his work for him, will fill his contracts for him, and will keep his engagements for him. Nothing less than a universal strike in a trade in a city can cause any employer serious inconvenience; and, in the case of a universal strike, the employers, if they hold together compactly, will have the advantage of the strikers.

The association has other functions than defense. It undertakes a fair regulation of the labor troubles of its members. It has daily meetings—in its first period of experiment. It advises members. In some cases it recommends an increase of wages. It has had a scientific estimate made of the increased cost of living in Chicago during the last four years, which is sixteen per cent.; and it recommends a corresponding increase in wages over the wages of four years ago. It favors "open" shops. It takes up every case as it rises and gives whatever advice or practical help that seems proper.—The World's Work.

Country Life in America for October is a superbly illustrated, double country home number, and takes up the various problems that cluster about the building of a country house, from how the cellar can be kept dry, to the question of interior decorations; it is, in fact, a complete house building manual. Many of the articles are by prominent architects. "Successful Country Houses," with superb illustrations of forty houses from all over the United States, describes the most important types of houses in this country.

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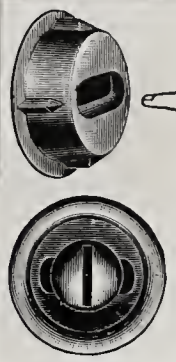

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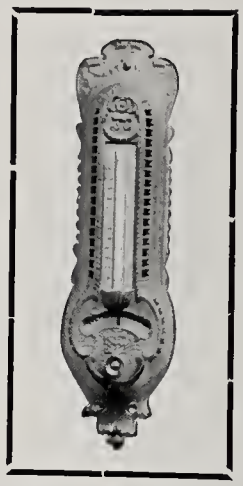

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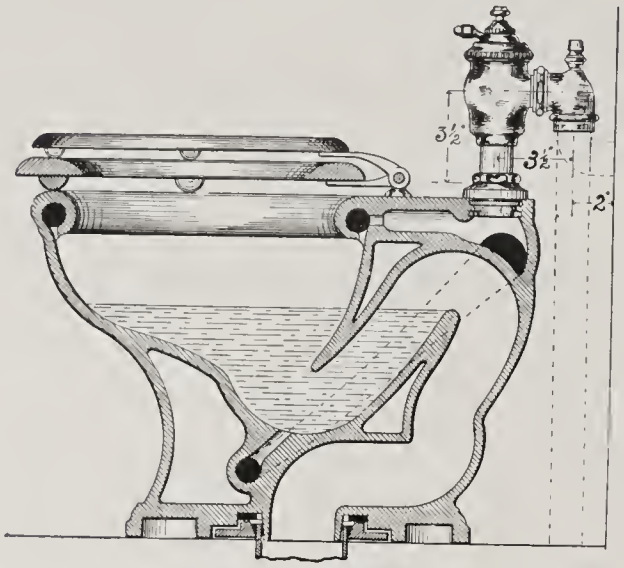

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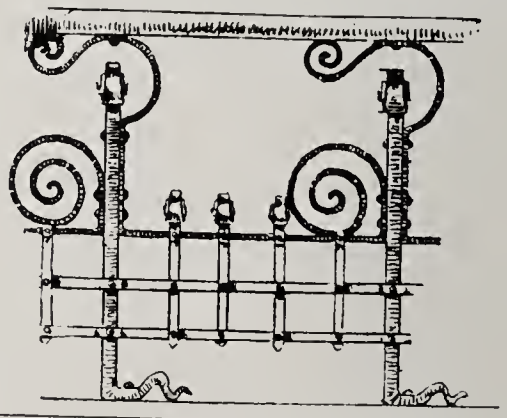

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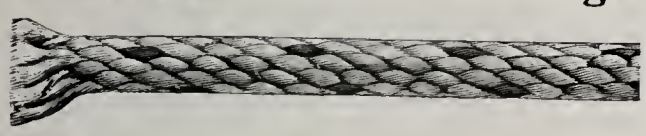

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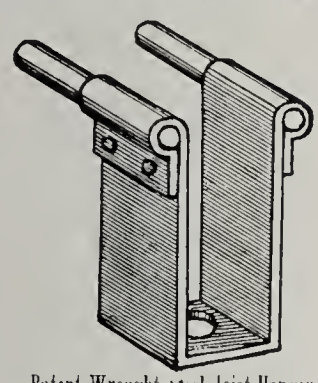

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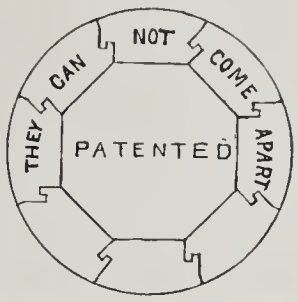

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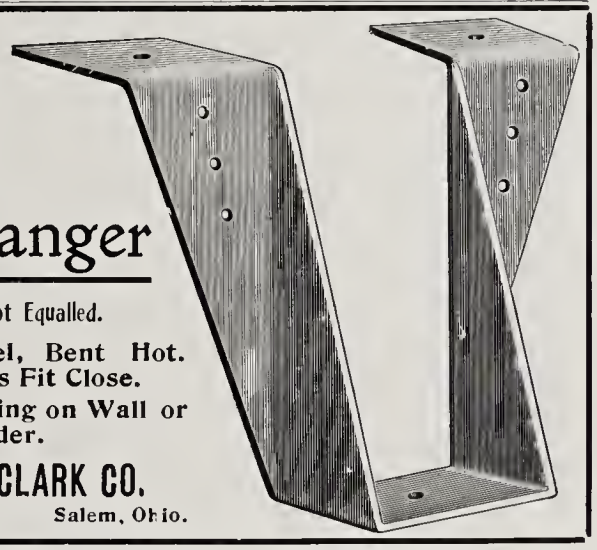

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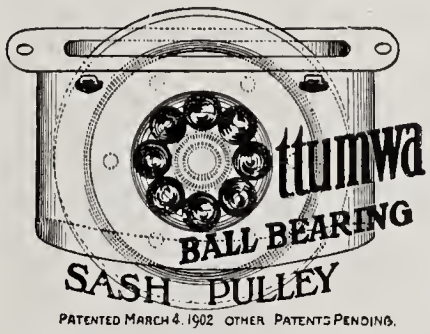

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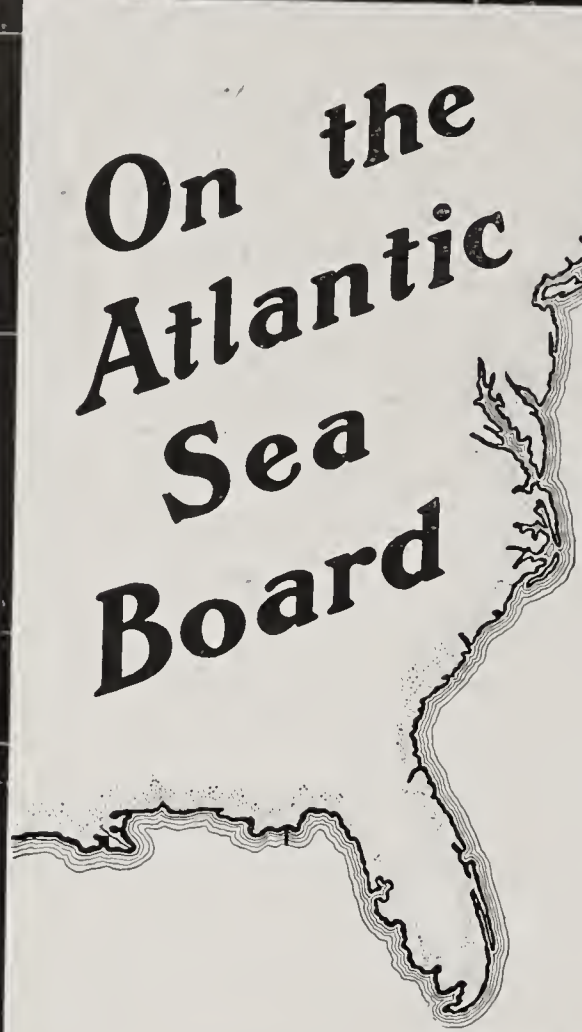

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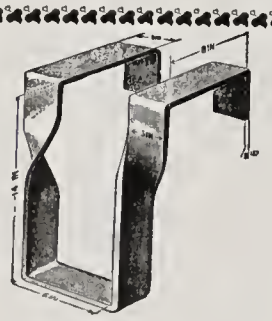

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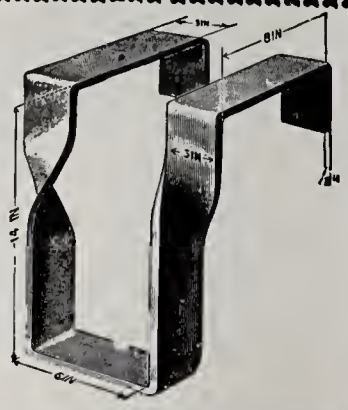

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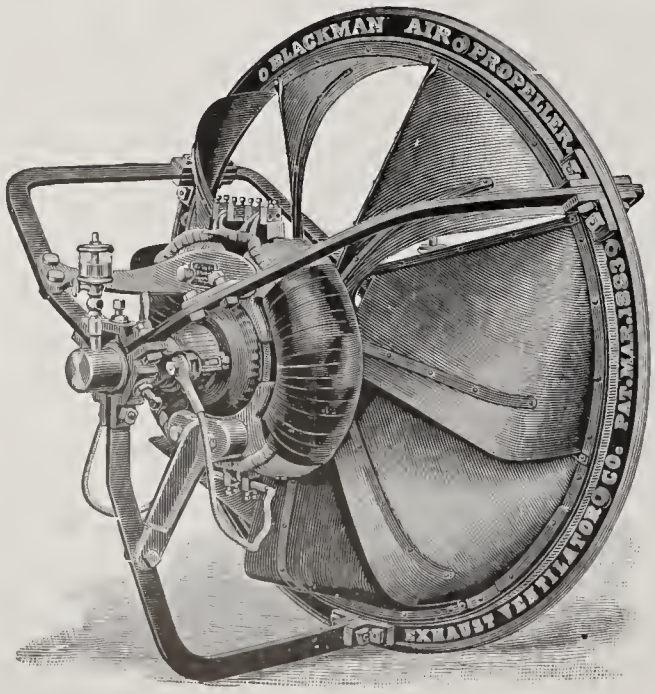

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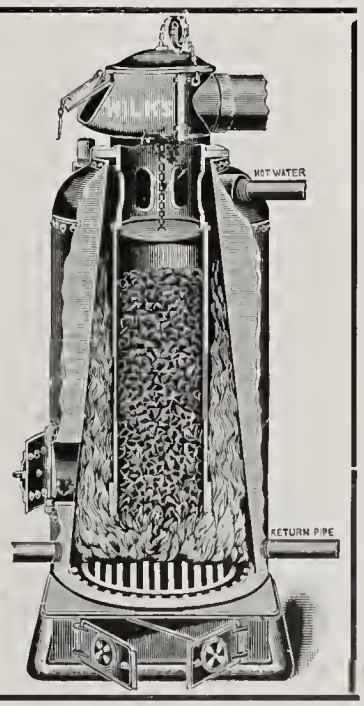

PUBLISHER'S DEPARTMENT.

(CONTINUED)

THE WESTERN ARCHITECT

IS PUBLISHED THE 15th OF EACH MONTH

THE WESTERN ARCHITECT PUBLISHING COMPANY.

(INCORPORATED.)

A HANDSOME CATALOGUE.

We beg to acknowledge receipt of a handsome catalogue issued by the Chamberlain Metal Weather Strip Company, of Detroit, Mich., and Minneapolis, Minn., at 837 Guaranty Building, with D. H. Robinson as Northwestern manager.

This catalogue is certainly a credit to the company issuing it, both from an artistic standpoint and a practical one, illustrating the high class of work the company is doing. It shows that the weather strip has been installed in a large number of handsome homes throughout the country, and judging from the high class of testimonials its efficiency has been thoroughly demonstrated. Architects of the different cities have fully realized the intrinsic value of this device and are showing their appreciation by specifying it in large apartment houses, public buildings, as well as fine residences, and no one who erects a fine building should fail to investigate the Chamberlain Metal Weather Strip.

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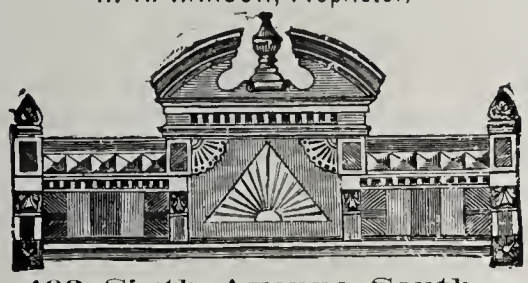

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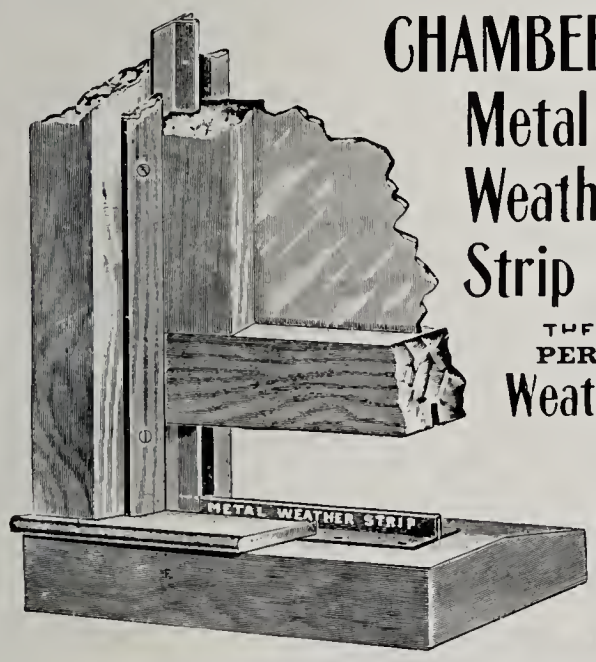

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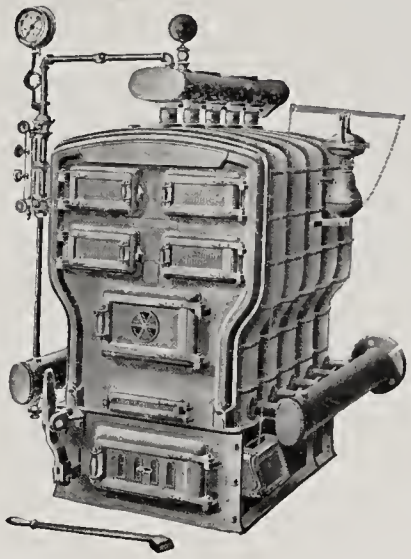

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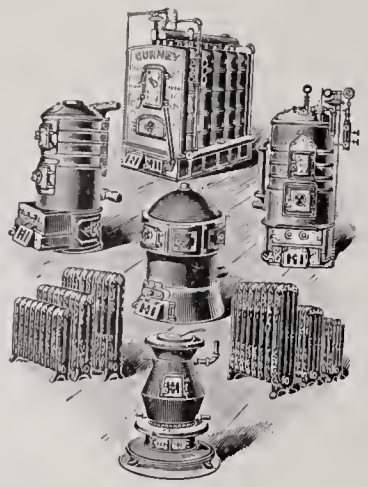

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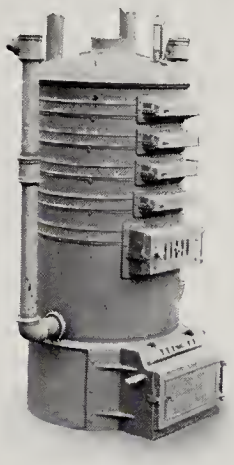

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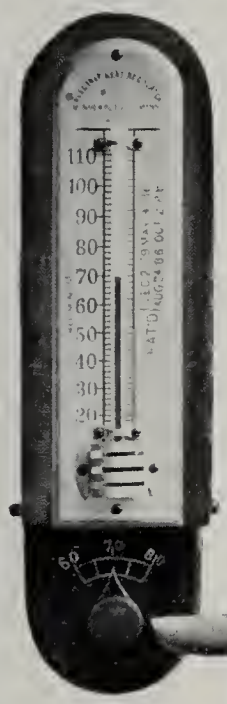

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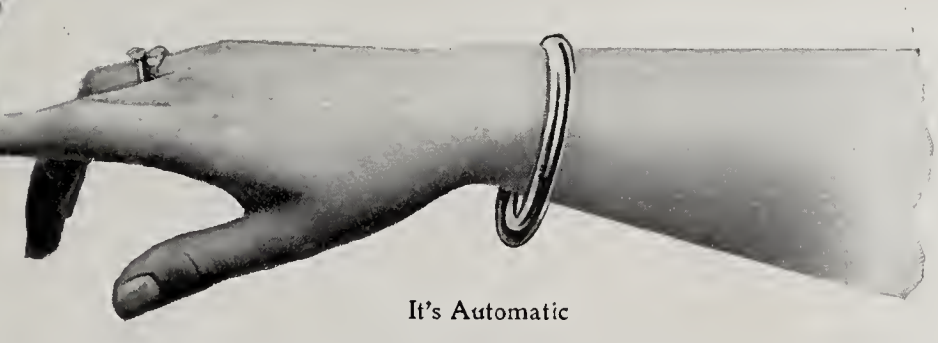

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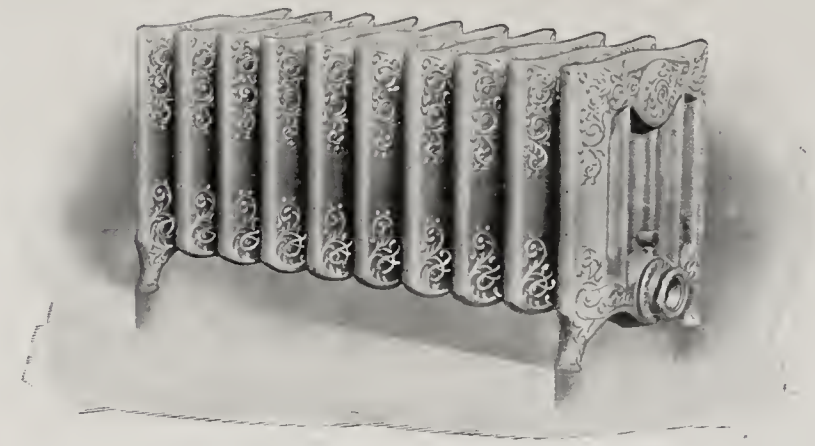

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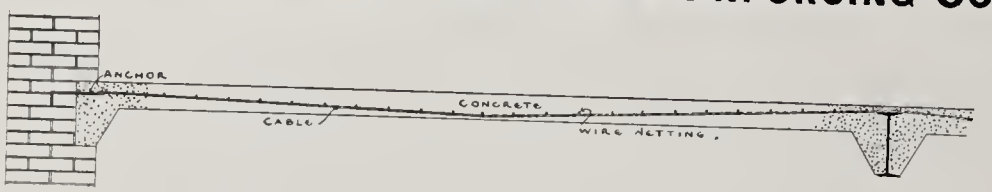

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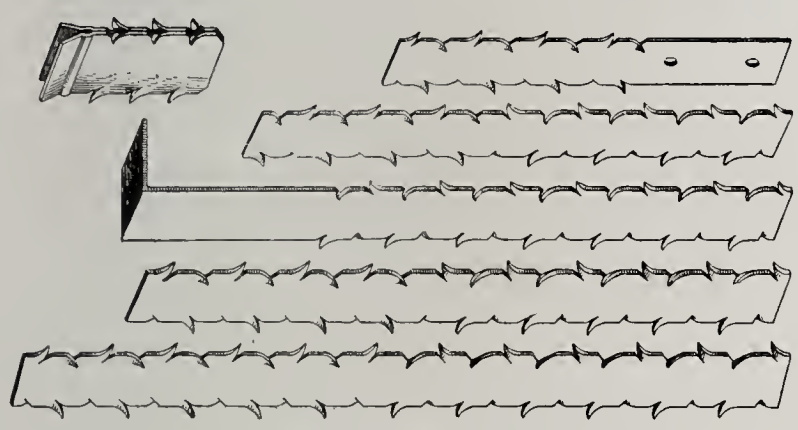

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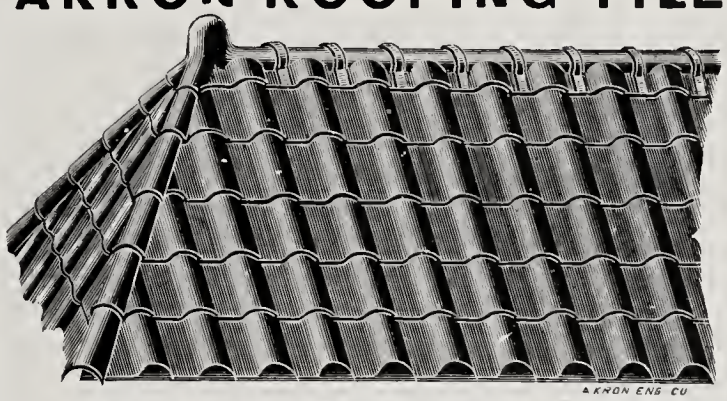

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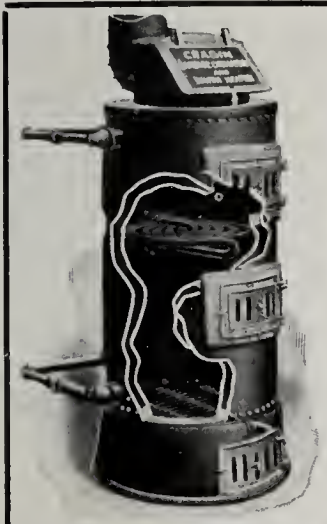

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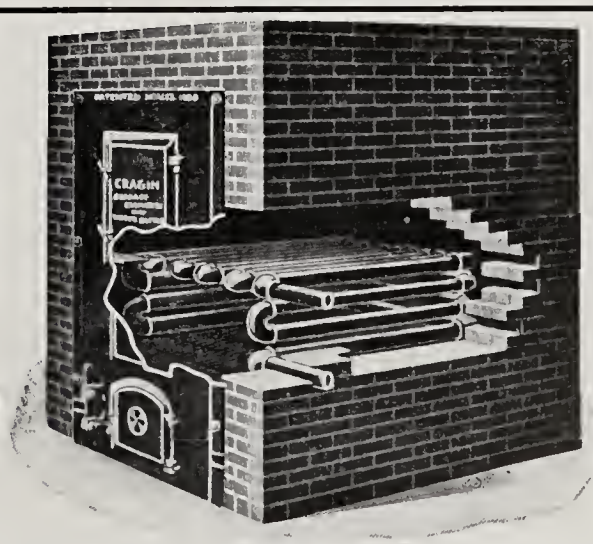

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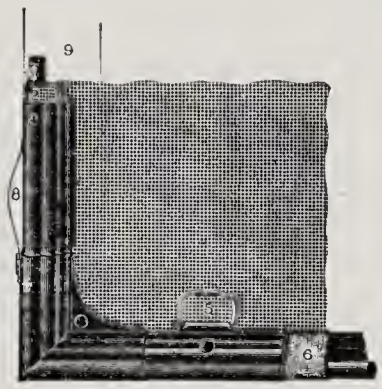
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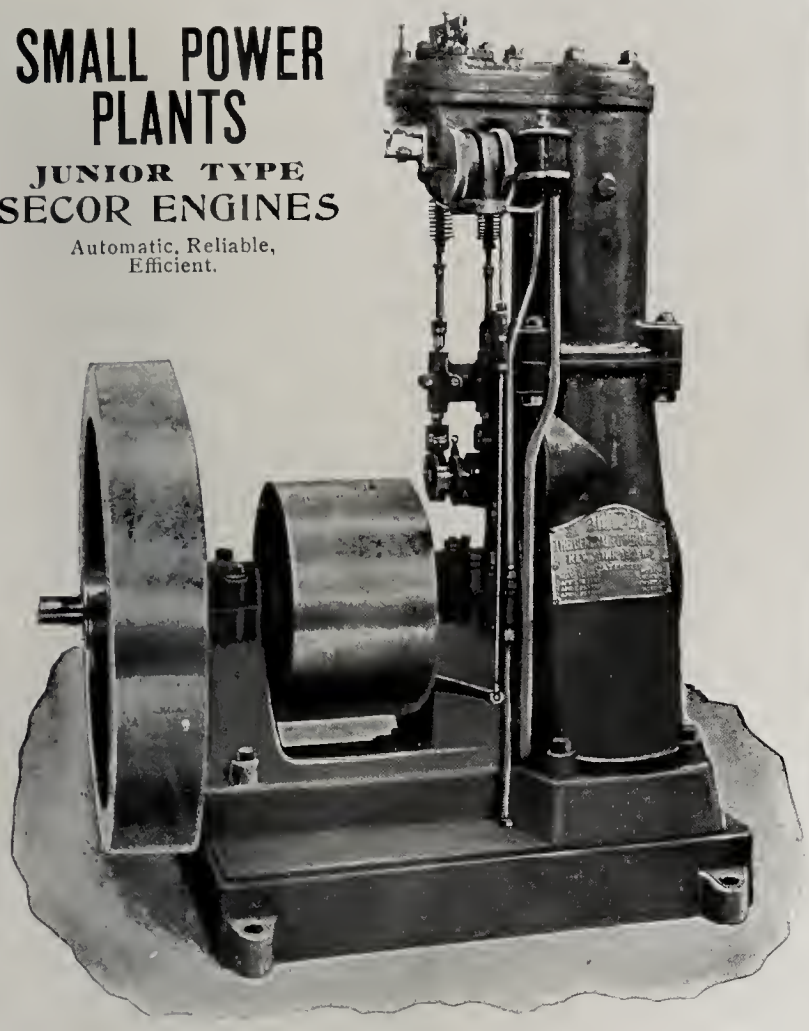

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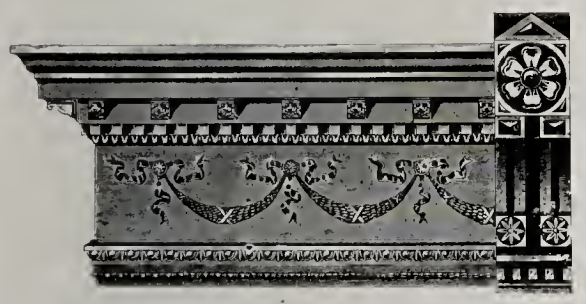

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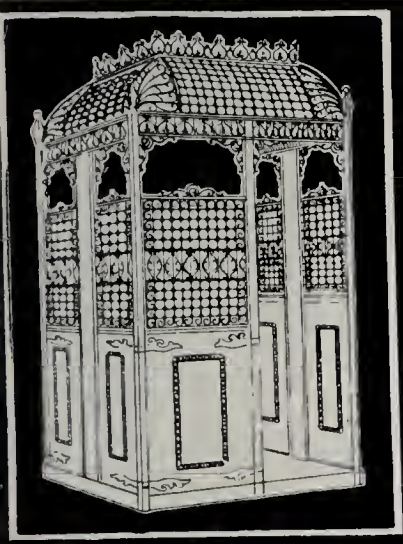

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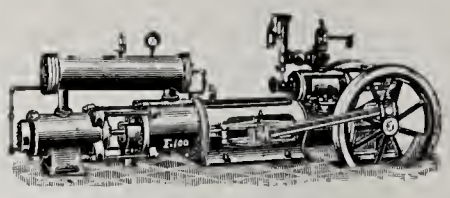

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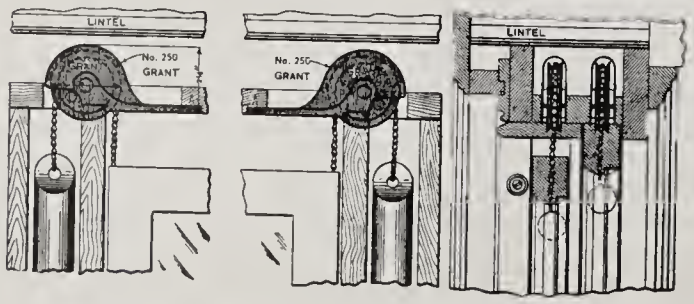

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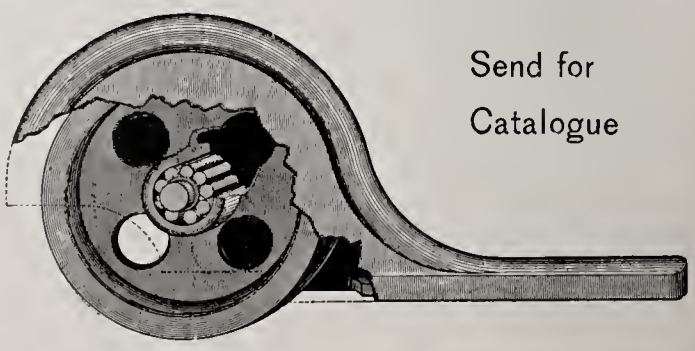

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ALL doubts as to whether the University of Minnesota is among the leading institutions of learning in the West were removed on the afternoon of Oct. 31st. It is now admitted to be such at Ann Arbor even. May no one suggest to the Board of Regents that the tremendous triumphs of the gridiron are made possible by their cutting out the fine arts from the courses of study for the year. It seems, however, that the orders to that effect have been somewhat modified or evaded, for at least one instructor in freehand drawing is retained. No one will try harder than this commentator to establish rooting as the rightful leader of the three R's of modern learning—still, an ever-increasing number of young people are finding it to their advantage to know how to draw.

THE MANAGERS OF every great raid of exploitation have the kindness or foresight to provide themselves with a chorus of advocates whose duties do not cease with the bursting of the bubble. They are required to point out a suitable scapegoat for carrying away and hiding their employer's sins. Sometimes this and sometimes that is suitable for the purpose, but just now it is evident that the rapacity of organized labor is the scapegoat that is to screen the Wall street wreckage from public gaze. One of these advocates kindly exonerates skilled labor, and explains that it is the "unwarranted exactions of crude labor that have brought the menace of paralysis upon industry." This menacing party may, if he is young and active and fortunate enough to get an in-door-all-the-year job and has the health to stick it out, earn forty dollars a month or so. Or he may, when exploitation has borne its perfect fruit, tramp.

SKILLED workmen in cities have shown a capacity for organizing and pulling together which has enabled them to hold their own, enough to at least get some share of the plunder in a time of combinations chiefly for plunder. No doubt it is the respect inspired by this pulling together that led the organ quoted above to pass by skilled workmen and to blame "crude labor" for its expected business collapse—a collapse which, if it comes, will be precipitated in the main by vast transactions in values created in stock exchanges and on curbs, rather than by the operations of workmen's unions. These last, coming as they do more directly in contact with the public, must naturally do duty as buffer to a large extent, but let us not let the sins of organized or "crude" labor hide the fact that while they are exacting from two dollars to five dollars a day for doing something tangible in the way of production, they whose organs are so busy decrying these exactions

have been getting hundreds of millions out of operations representing no productive gain whatever.

As these hundreds of millions do not appear to have been seduced from Western pockets to any great extent, it is somewhat superfluous for a Western organ of these exploiters to be shaking in its shoes over what may happen to the business world. We have more than once pointed out that the development of the West for the past few years has been normal and conservative; that cities have been almost entirely free from land speculation; that a somewhat risky "boom" in farm lands seems to have spent itself early and to have been sustained by large immigration and good crops and prices; and that both steam and electric railway building, especially in the region of the great "merger" has been almost unknown for the past few years. Unless this great region suffers from a series of bad crop years with low prices as was the case a decade since, it is likely to be clamoring for increased transportation facilities and other improvements to match.

REFERENCE was made in a former issue to the standing before the lower courts of the Minnesota statute licensing plumbers. These had decided against it on more than one ground, but of late the favored line of defense has been the unconstitutionality of the law, communities of less than 10,000 being exempted from its operation. This defense has been sustained by the supreme court. Leaders in the craft have expressed doubts as to their chances of getting a new act passed that will overcome the obstacle—the "country member" don't see the interests of his constituents in that way. Nothing about the litigation thus far throws any new light on the limitations of the police powers of legislative bodies. One of the lower court decisions, our readers will recall, held that the contracting plumber, being responsible for the legal nature of his work, the law makers could not go beyond him and say what manner of workmen he should employ. This principle commends itself as a wholesome tendency to curb legislative meddling. A city attorney within the state has been known to rule that a common council might not only enact that such and such objects must be attained—like the security of a trap water seal under working conditions—but also the specific way of doing it—that the builder might not attain the desired object in another and by actual proof better way, yet such proof could not be held to outweigh the "police power" of the council.

MR. MANN found himself a few years since—in the time of business depression of which we heard so much—to be possessed of one-twentieth of the stock of a large manufacturing corporation. By reason of good management in the shops, of a certain superior style and sturdiness to the output and of judicious advertising, the corporation came to be known as the leading producer of a great staple. Its property, with the goodwill of its business was reckoned to be worth ten millions of dollars, and shareholders were receiving fair returns on that sum. Then came a change,—the era of unprecedented prosperity of which we have heard so much—and with it came captains in finance who undertook to lead this corporation in the paths of true greatness and fortune. More capital would be needed, which an opulent public would be but too glad to provide, if only the word were said by the captains. Capital would be needed to remove competition—by simple purchase—to enlarge and newly equip the home plant, to reward the captains, and what not. About thirty millions of capital would be none too much to ask of an opulent public. And all came to pass as the captains had told—and more. Competitors did part with their properties at large prices, and stood by complacently while their factories were dismantled,—then cautiously invested their money in new ones.

The home plant was enlarged, so large that it seemed that common orders would be lost in it,—so large that customers could hardly expect common orders to receive any consideration—so large that the circumlocution of receiving and getting a common order filled seemed to be the greatest item of cost to the company. The captains did reward themselves for their services in promoting and underwriting. And somehow by the time the greatly enlarged plant was in working operation a lot of new competitors had sprung up, and they had interested some of the company's old foremen and heads of departments; then, too, this new system of piece work and inspection was fruitful of complaints all along the line. Then the new management which came with the new capital had assumed that the removal of competition would enable the company to save much advertising; but altho the enlarged factory was turning out ever so much goods, still it was found that there were others. Prices were higher, but so were cost and freights. And there must be something that the auditor hadn't fully explained; for dividends were continually shrinking—in fact no dividend had been made the last quarter.

Mr. Mann became annoyed, then thoughtful. He began a computation. "Years ago, I owned, let me see, one-twentieth of this business. We enlarged our capacity several times and paid as we went. We issued no bonds then. We relied on our ideas of goods and things to keep us to the front. By the way, what is my present share in this business?" He began to figure it out on the margin of a daily, but his attention was taken by a headline ,and reading down the column he learned that nothing stands in the way of continued and unprecedented prosperity but the labor unions. With this explanation he slipped his pencil in his pocket and went over to the bank to make a small 90 day loan.

MR. SAMIWEL PARX of Greater Gotham appears to be able to give boodling politicians of those parts an exhibition in official vitality that must astonish them. May the art die with him!

The manufacturer gives the merchant the benefit of his advertising, and in return asks that the retailer will co-operate with him in his efforts at trade-building.

Architects all recall a series of tests made some years since at the Washington University in St. Louis to determine the effect upon the lumber of southern hard pine of tapping the living trees for turpentine. These were made at the instance of Prof. Fernow, then at the head of the Forestry Bureau of the Department of the Interior, and enough specimens were used to establish the facts conclusively. Some one in the dim past had successfully launched the theory that tapping the trees for turpentine was followed by injury to the quality of the timber, and for years it was held to be a mark of skill in writing specifications to exclude lumber from trees so tapped. It chanced, however, that these tests showed the lumber from the tapped trees to be a trifle better than that from the untapped, altho the difference was so slight that another series of tests made with equal care from other trees might not have pointed to the same conclusion. The main practical value of the inquiry lay in its exposing the way in which a popular assumption with actually no basis of respectable origin may gain currency and pass unchallenged for generations. And the greatest absurdity of these old specifications lay in the belief that they would ever be followed; for any one can see that if the butts of the trees so tapped were left in the forest, there would be no means of identifying the logs, even at the sawmill. Probably the only lumber that ever reached its destined use with any means of showing or knowing whether or not it was from trees tapped for turpentine was that used in the experiments at the laboratories of the Washington University.

An instructive inquiry into the behavior of cements under varying stresses is now being conducted under the direction of Prof. J. L. Van Ornum at the same university. Cement products are being examined to determine the effect of "fatigue," something after the manner of the inquiry made by Woehler and others with reference to steel a generation ago. Thus far results are reported on crushing tests of neat cement only, 2 inch cubes of a standard American brand. After an average crushing strength was determined, loads varying from 35 per cent to 95 per cent of that average were applied and removed repeatedly till failure ensued. The proceedings of the Am. Soc. C. E. for Aug. '03, give a preliminary outline of results thus far obtained, with the inevitable "curve." At 80 per cent of the full loan, one hundred and fifty alternations of loading and unloading were sufficient to destroy the cubes, while at 60 per cent it took fifteen hundred such alternations. As 55 per cent of the ultimate load is used, something like a decent factor of safety appears, the curve flattens out, and we find that fifty-five hundred repetitions of the loading are necessary to equal one too great burden. This inquiry is being made to cover mixtures of the nature of concrete also, but these are not far enough advanced to warrant a statement of results.

But it is not given to the crude investigators of the Western World, limited as they are by belief and fancy, and relying for knowledge upon their cold scientific methods, to learn much of the nature of things. To know the real nature of inanimate things one must turn to the Orient, where the subtle insight and sympathies of men have enabled them to trace life thru its different incarnations, where one's belief in no way stands in the way of his accepting another's, and where the acceptance of several beliefs in no way shakes the faith in either. Readers of the current number of Pearson's will find a review by Mr. Ghosh of the discovery by an Oriental professor, and his demonstration by scientific tests, that metals have a life with not only its fatigues but its recoveries after resting. Furthermore, they have their antipathies, from which they recoil conclusively; their poisons, for which there are antidotes effective if applied in time. As with animals, if the antidote come too late, the metals die in fact, and cannot be made again to respond to the tests to which they were sensitive before being poisoned. Diagrams in proof of all these discoveries are given, not only showing the tests of metals themselves, but parallel pictures showing their likeness in behavior to muscles under similar conditions. Thus both muscles and metals make, in stages of fresh activity, generous undulations of the recording machine, which lessen as fatigue sets in, and become yet less and less toward exhaustion, but after a period of rest again respond with vigor. Too toxic applications render either lifeless for a season, but if these applications be withdrawn in time, or neutralized by antidotes, signs of life reappear in metal and muscle alike. Here we have "scientific" confirmation of a belief that erstwhile had a foothold among us. Time was when a gentleman must have two razors which were each used for a time, turn and turn about—one to rest the other. In those days every locomotive engineer must have his own iron horse, and "her" day's work was the same as that of her driver, who was perhaps so thoughtful for "her" that he would raise loud protest if a switch engine were not present at the end of the run to haul "her" to the round house. "She has done her day's work, and it is a qualified shame to make her make the run to the round house on her own steam," would be heard from the driver as he stood beside the engine in the station, alternately patting "her" and scowling down the line where the waiting switch engine should be. To be sure in those days there were a very few scoffers who called attention to the fact that the gentleman's razor which was used perhaps only three or four times a week, needed periods of rest just as long and often as that of the barber, which saw a hundred times as much service; and that the marine engine could make a run across the Pacific without any more need of rest than the locomotive required after taking a passenger train a hundred and fifty miles, but such thoughts were only nonsense, anyhow.

There are probably not over fifty American architects who receive upwards of $50,000 a year, and there may be as many as 200 architects whose incomes are close to $25,000 a year.

WM. S. EAMES.

THE CLEVELAND CONVENTION.

Reported by E. P. Overmire, Architect.

Well, the American Institute Convention of 1903 has passed into history, realization in this instance having more than equalled anticipation. We were promised one of the times of our lives by the Cleveland Chapter, and right royally did they acquit themselves.

Delegates to the number of 100 and over had registered when the convention was called to order by President McKim on Thursday, Oct. 15th; this was increased by late arrivals to some 125 or 130, besides many ladies who accompanied the officers and delegates. President McKim's opening address was brief and to the point, optimistic in tone and in full acord with the sentiment of the convention, judging by its very hearty and cordial reception. He felicitated the Institute upon the fact of their possession of a permanent home at Washington, the artistically and historically famous old "Octagon House"; upon the increasing and cordial interest with which the profession in England regards our efforts to solve the great problems now confronting us in America, notably the schemes for the development and improvement of Washington and Cleveland; he also referred to the movements in the same direction at Buffalo, Chicago and St. Paul, where the question of a proper environment for the noble new Minnesota capitol building has been seriously considered and practically solved; upon the importance of pending legislation at Washington, affecting the very foundations of our profession, as well as its future development; upon the increase and betterment of our architectural schools at home and abroad, a bill for the incorporation of the American Academy at Rome having been introduced in the last Congress, with good prospects of becoming a law at the next session, having already passed the Senate and been favorably reported to the House, but final action was prevented, owing to the strained conditions prevailing during the closing weeks of that session. It will be re-introduced in the 58th Congress and undoubtedly passed. President McKim called attention to the fact that the 57th Congress had authorized the restoration of the "White House," the construction of a Municipal Building for the District of Columbia, the Army War College, a building for the National Museum, the Engineers' School of Application, the Union Railroad Station, an office building for the use of Representatives, and a Hall of Records, besides making provision for the Lincoln Memorial. Designs for nearly all of these buildings have already been intrusted to members of our profession, and each will contribute to the fulfillment of the grand scheme for the improvement of Washington.

The duties of the Chapters, as organic members of the National Body, was pointed out, reminding them that the ultimate success of all these grand schemes lay largely in the zeal and perseverance of the Institute thro its Chapters influencing the members of Congress by personal explanations and enlargements upon the merits of these proposed improvements, special emphasis being laid upon the faithful performance of such duties by each chapter, and deprecating the lack of interest in certain quarters and failure to grasp passing opportunities, which was fatal to effective work as a whole.

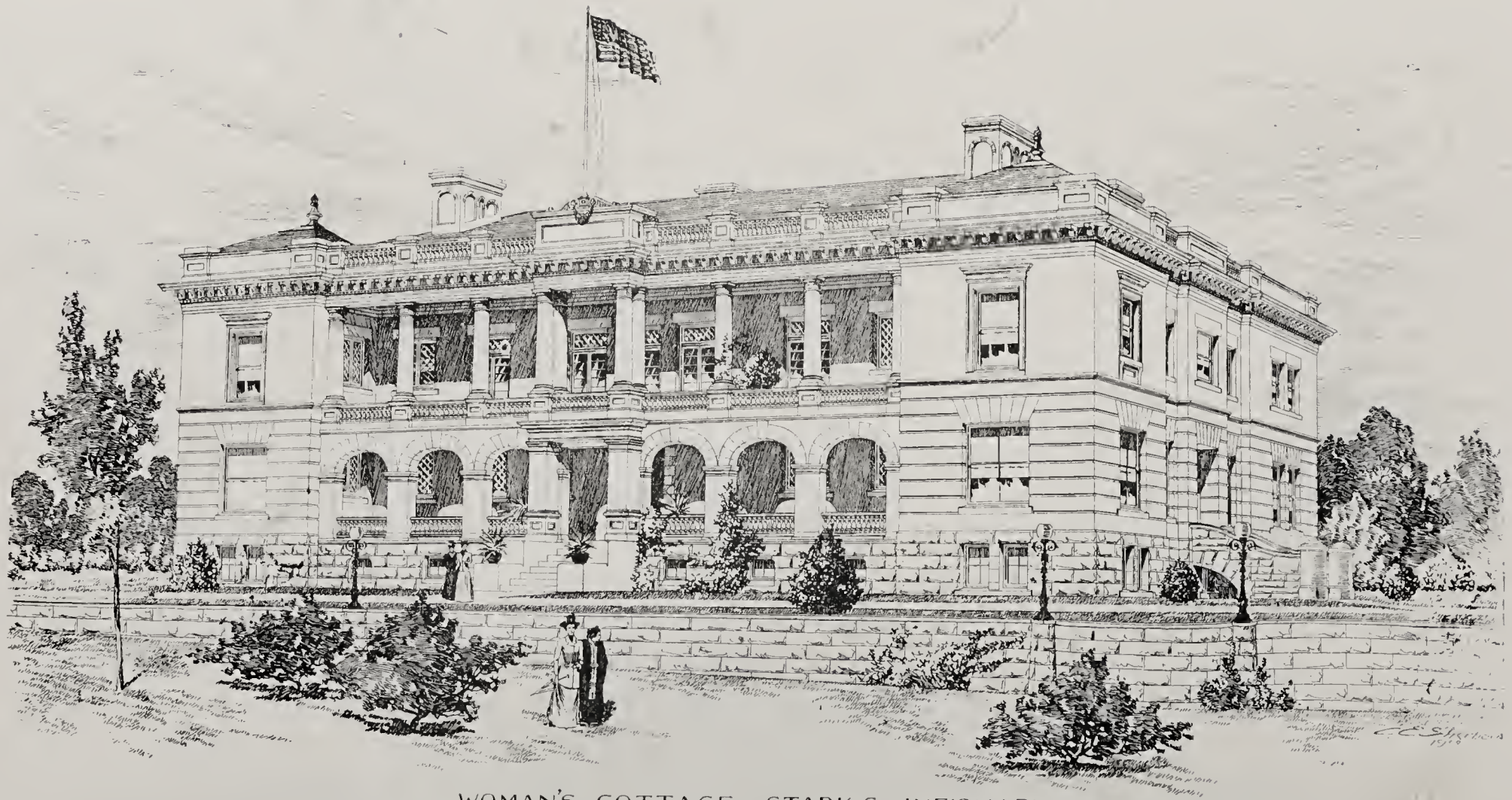
The remainder of the session was occupied with the reception of annual reports from officers and standing and special committees, which were referred to special committees for further action. After a buffet lunch served in the rear of convention hall, the delegates and ladies were taken on a drive by the Cleveland Chapter, which included Euclid Avenue and the Park System of Cleveland, which is one of the finest in America. After a short stop at the Country Club we were driven to the new Euclid Club, where a fine dinner was served, concluding with impromptu songs and speeches, in season to enable us to return to the evening session of the convention, where interesting and able papers were read, as follows: "The Necessity for Trained Men in Future Artistic Productions," by Theo. N. Ely; "Academic Training in Sculpture," by Augustus St. Gaudens; "Rome as a Place for Schooling for a Decorative Painter," by E. H. Blashfield, and upon "The Significance of Rome to the American Architectural Student," by Austin W. Lord. Messrs. St. Gaudens' and Blashfield's papers were finely illustrated with lantern slides. This concluded the first day.

The second day was occupied with listening to reports of special committees upon the annual reports, upon credentials and such others as were not heard at the first session. The nominating committee upon candidates for office for 1904 reported, and the polls were declared open until 11 o'clock the following day.

UNIVERSITY OF ILLINOIS

ALTERNATE COMPETITIVE DESIGN FOR ST. STEPHEN'S CHURCH, (EPISCOPAL), WILKINSBURG, PA.
Carpenter & Crocker, Architects, Pittsburg, Pa.

UNIVERSITY OF ILLINOIS



WOMAN'S COTTAGE STARK Co. INFIRMARY.

GUY TILDEN, Architect.
CANTON, O

Supplement to
The Western Architect.

November, 1903

INTERIOR OF ST. JAMES' MEMORIAL CHURCH, PITTSBURG, PA.
Carpenter & Crocker, Architects, Pittsburg, Pa.

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EAST ENTRANCE, HITCHCOCK HALL.
Dwight Heald Perkins, Architect, Chicago.

INTERIOR OF THE VESTIBULE, CORRIDOR, HITCHCOCK HALL.
Dwight Heald Perkins, Architects, Chicago.

INTERIOR OF SECOND NATIONAL BANK, WINONA, MINN.
Nimmons & Fellows, Architects, Chicago.

SECOND NATIONAL BANK, WINONA, MINN.
Nimmons & Fellows, Architects, Chicago.

WILLSON AVENUE BOYS' CLUB, CLEVELAND, OHIO.
Badgley & Nicklas, Architects, Cleveland, O.

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INTERIOR OF MEMORIAL LIBRARY, HITCHCOCK HALL.
Dwight Heald Perkins, Architect Chicago.

LIBRARY BAY, HITCHCOCK HALL.
Dwight Heald Perkins, Architect, Chicago.

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GERMAN BANK BUILDING, DUBUQUE, IA.
Williams & Spencer, Architects, Dubuque, Ia.

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ST. JAMES' MEMORIAL CHURCH (EPISCOPAL) HOMEWOOD, PITTSBURG, PA.
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RESIDENCE FOR JOHN S. NEWMYER, DAWSON PA.
Beezer Bros., Architects, Pittsburg, Pa.

LIBRARY
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COMPETITIVE DESIGN FOR ST. STEPHEN'S CHURCH, (EPISCOPAL), WILKINSBURG, PA.
Carpenter & Crocker, Architects, Pittsburg, Pa.

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UNIVERSITY OF CALIFORNIA

Subscriptions amounting to ten or twelve thousand dollars were made to the fund for the purchase of the "Octagon House," Cass Gilbert subscribing one thousand dollars of this on behalf of the Minnesota Chapter. As twelve thousand dollars had previously been paid, this makes a fine showing, and insures the raising of the balance of the full amount, $30,000.00, at an early day.

The revision of the schedule of fees and professional practice of architects was the subject of extended thought, both in committee and in convention, which crystallized into a practically new document, in which the division of services was abolished, it being deemed wisest to leave that to each individual practitioner, but insisting upon 5 per cent as the minimum for full services; for new work costing under ten thousand dollars, and for monuments, decorative work and furniture, a special rate in excess of 5 per cent. Interior or other decorative work and alterations and additions to existing buildings, 10 per cent. The basis of settlement in cases of abandonment or suspension of the work was made as follows: Preliminary studies, a fee according to the magnitude of the work. Preliminary studies, working drawings and specifications, sixty per cent of the full charge of 5 per cent. One-half of the total fee to be due and payable upon completion of the working drawings, specifications, and scale details. Several other changes of minor importance were agreed upon, all of which will be published in due season.

After lunch the plans of the Cleveland Group Commission were ably and fully explained to the convention by Messrs. Carrere and Brunner, of the Commission. Large, artistically rendered drawings lined the walls of convention hall and aided materially in the explanation, some of them having already appeared in the architectural magazines. The foundations of Mr. Brunner's new post-office in Monument Square are now complete, and it was announced that Mr. J. Milton Dyer of Cleveland had been selected that afternoon to design the new City Hall.

Friday evening was passed at a banquet given by the Cleveland Chapter at the Century Club, during which the ladies of the party were entertained by the ladies of the local chapter at the Opera House, where Mr. Bluebeard, Jr., was being presented. After discussing a most enjoyable menu, we were regaled with choice music by the Schumann Quartet, interspersed with after-dinner speeches by Abram Garfield, who made the address of welcome; by President McKim, whose address brought out the song "For He's a Jolly Good Fellow"; by J. L. Mauran, who told several happy stories; by Louis J. Millet, who had much to say about art and artists, persistently ignoring the architect in an amusing manner; by Vice-President Stone; by G. B. Post, who spoke words of cheer; by Cass Gilbert, whose topic was "Taking Courage for the Future"; by W. B. Mundie, whose subject was "Pants"; and closing with J. W. McLaughlin, whose topic was "In Union There Is Strength." A well-known life insurance man, Davis by name, concluded the long program by telling several jolly good stroies in a manner that "brought down the house."

As the witching hour of midnight had now arrived we adjourned at this point, altho tradition has it that a number who had become suspiciously jolly spent a large part of the remainder of the night "under the table."

Saturday, the third and concluding day of the convention, was given to completion of unfinished business and the announcement of results of the election of Officers and Directors, as follows: For President, W. S. Eames of St. Louis, Mo.; for 1st Vice-President, Frank Miles Day of Philadelphia, Pa.; for 2d Vice-President, W. A. Boring of New York; for Secretary and Treasurer, Glenn Brown of Washington, D. C. Directors for one year: Robert D. Andrews of Boston, Mass., Geo. B. Post of New York, and Edgar V. Seeler of Philadelphia, Pa. W. M. Kendall and Austin W. Lord were elected to fellowship in the Institute. Austin Webb of London, Eng., Victor Laloux of Paris, France, Hon. Joseph H. Choate, American Ambassador to the Court of St. James, and Theodore Cooper of New York, were elected Honorary Members; and Frederic Crowninshield of New York and Owen Fleming of London, Eng., to Corresponding Membership.

After a vote of thanks to the Cleveland Chapter for their magnificent hospitality, to the retiring officers and to those who had favored us with papers and lectures, final adjournment was taken without definite selection of a place of meeting in 1904, it being the sense of the convention that Washington was the logical place, because it has been the custom to meet there in alternate years, for the reason that important legislation will be pending there in the next session of Congress, and for the further reason that the Institute owns a fine home there. Many were of the opinion that we should meet there every year hereafter. It was left with the Board of Directors. Mr. Mauran made an impassioned plea on behalf of St. Louis for the next meeting, but for the above reasons, and the fact that past experience has not justified holding conventions at the time and place of large expositions, a special session at St. Louis was thought better, when freedom from business would enable all to do justice both to the exposition and themselves.

LARGEST DOME IN THE WORLD.

The plans and specifications for the World's Fair Festival Hall at St. Louis, which is to stand at the head of the main cascade on Art Hill, have been given to the contractors. The pre-eminent feature of the hall will be a sculpture-crowned top to the immense dome 260 feet high. The dome, it is said, is to be larger than that of St. Peter's in Rome, which is the largest in the world.

The auditorium in the interior of the building will be 112 feet high, from the floor of the theater to the soffit of the dome. The proscenium arch of the stage has a space of ninety-three feet four inches, one of the largest in the country, and is fifty-four feet deep.

OLD ENGLISH DINING EXTENSION TABLE,
For Mr. F. E. Weyerhauser, St. Paul, Minn.
Manufactured by Wm. Yungbauer, St. Paul.

RETROSPECT AND FORECAST.

Fruition is the reward of labor, honestly pursued and intelligently directed. Four years ago the Architects' and Builders' Journal entered with trepidation into an untried local field of journalism— the publication of an organ in the interests of the arts and artisans of the building trade. While the promoters of the enterprise realized the utility of such a publication, they were dubious whether the support would be commensurate with the cost of the undertaking. Nevertheless, they had the courage of their convictions and faith in its ultimate success, and so the Journal was launched. That their confidence in the clientele they purposed to serve, was not misplaced, has been demonstrated by the growth of the Journal from a timid advocate to a recognized organ whose influence extends the length and breadth of the land.

With this issue we begin the fifth year of publication. To our efforts to make it a reputable and reliable instrument for the dissemination of news of interest to the building world, has been added the generous support of our patrons, to whom we take this means of returning our thanks. To the architects of this and other cities we are especially indebted for their obliging courtesy in favoring us with information concerning new projects as well as current building news of the day. To the builders and manufacturers of, and traders in, building supplies, we also owe a debt of appreciation for their consideration and support of an enterprise, which we have reason to believe has been mutually beneficial. It is the aim of the publishers to enlarge the scope of usefulness of the Journal by introducing features which will enhance the value of this publication to its patrons. Already it is a recognized source of information among those interested in all the branches of building, in all the important cities, from Canada to Texas and from the Atlantic to the Pacific. A continual increase in subscriptions enlarges its influence as a medium of exchange between producer and consumer, while its news columns provide a compendium of facts in the building industry which, in many instances, has been of invaluable service.

In thanking our patrons for their patronage in the past we ask a continuance of that support in the future and on our part we shall be ever alert to contribute to the success of those who have made the Journal an existant fact.—Editorial in Architects' and Builders' Journal.

NO CHANGE IN METHOD OF LAYING BRICK.

In the list of trades which have suffered from mechanical innovations it is interesting to note that the trade followed by the knight of the trowel and hammer has been least affected. In fact, it can be truthfully stated that this trade is the only one which has defied the genius of the inventor to devise or construct a machine to do the work in a more expeditious or satisfactory manner than it is performed today by hand.

By the introduction of machinery the labors of the carpenter and the machinist, as well as the scores of other trades which could be mentioned, have been simplified to such an extent as to cause alarm among the great army of workmen who eke out a livelihood through those channels. Yet the bricklayer, so far, has had no cause to feel these disquieting features which long ago started the rumble of discontent among his brothers the world over. The progress of time and the great advance of civilization, with all its achievements in the way of applied mechanics, have let him severely alone, and today the bricklayer follows his calling in as primitive method, using the same tools as did the artisans of ancient Babylon in the construction of the famous Tower of Babel. Numerous attempts have been made by inventors of the past and present to rob the bricklayer of his individuality by substituting machinery, but that these attempts were without success is fully verified by the presence of the man on the wall and his spasmodic cries of "mort." The simplicity of the trade has been the bricklayer's salvation. The piling of one brick on another with a thin layer of mortar between, until the whole wall is complete, to the layman seems no difficult task, but it takes years of practice and close application to the work for the novice to become a skilled mechanic.

The failure of inventors to relegate the bricklayer of many centuries into oblivion is, for the most part, responsible for the healthy condition of the trade at the present time. This failure has enabled the bricklayer to assume an air of independence which is not so prominently apparent in other trades where the man's place can be so easily filled by the machine. In labor troubles the bricklayer can always be seen taking the initiative, and he invariably experiences less difficulty in convincing the employer that his demands are within the bounds of equity and justice. For these reasons the bricklayer commands a remuneration for his labors which is the envy of the followers of all other trades.

The good architect, after he has acquired a reputation, is sure of work, and is likely to have more offered him than he can conveniently care for; but the third and fourth class architect lives from hand to mouth, and at best makes but a living.

LIMIT OF SPEED.

President Pritchett, of the Massachusetts Institute of Technology, has had the distinction of a ride on the new high-speed electric lines near Berlin, of which so much has been said of late. Dr. Pritchett rode in both the Siemens and Allgemeine cars, but on a foggy morning, when only 100 miles an hour was allowed to be made. He expresses himself as surprised at the steadiness of the car at this speed, which had the effect of lessening the sensation of speed, and he was assured that this steadiness was maintained at the extreme speed thus far attained, of 130 miles per hour. Dr. Pritchett was afforded every facility for studying the experiments, and was impressed with the practicability of speeds up to 100 miles an hour where no considerable grades or curves are to be overcome, such a line, for instance, as might be laid between New York and Washington.

PHILADELPHIA BUILDERS WILL BEGIN WAR ON SYMPATHETIC STRIKES . ON JANUARY 1, 1904.

The advisory board of the Master Builders' Exchange of Philadelphia on the 8th of last month fixed January 1, 1904, as the day on which systematic warfare by means of lockouts against sympathetic strikes will begin. The advisory board represents the 300 members of the Master Builders' Exchange and 1,000 subcontractors, whose signatures are on record.

This means that on and after January 1 any sympathetic strikes will have to face a lockout, not only of the Employers' Association, but of all of the leading individual employers.

This action is the most important ever undertaken in the structural trades in this city. The Philadelphia employers in this line did $30,000,000 of business in the city limits alone in 1902. This is only a small part of the work controlled by them. The builders who are to participate in the lockout plan have operations in every part of the United States and often in foreign lands.

The above named sum represents the money involved in work for which permits are necessary in this municipality. The largest contract let last year, the State Capitol, is a $4,000,000 work under the supervision of a Philadelphia firm.

The sympathetic strike situation is not local, but has caused trouble and dissatisfaction all over the country. The decision made on the 8th of September, say the master builders, positvely sounds the doom of the sympathetic strike in this city, and will go far toward obliterating it wherever Philadelphia men are at work.

The subject has been pending since November 25, 1902. The advisory board was then created and was approved on April 24, 1903, by the presidents of the Employers' Associations. Since then the labor atmosphere, though clarified in some quarters, has again darkened, and the prospects are that little or no work will be done in the coming year.

The text of the resolution adopted on the 8th of September follows:

In pursuance of the authority given the advisory board of the Master Builders' Exchange by the resolution of the Exchange, passed November 25, 1902, subscribed to by the Employers' Associations and by a number of individual employers, and further urged by a meeting of the presidents of said associations held April 24, 1903, at the Master Builders' Exchange, at which a resolution was adopted as follows:

"Resolved, On and after a time to be fixed at the discretion of the advisory board of the Master Builders' Exchange, no workman shall be employed on any of our buildings in Philadelphia unless he is willing to agree not to engage in any sympathetic strike and to arbitrate any difference that may arise, work to continue meanwhile."

We, the advisory board, have determined that on and after the first day of January, 1904, the above resolution shall be enforced, and we call upon you to adhere strictly to the resolution.

JOHN ATKINSON,
JOHN S. STEVENS,
GEORGE WATSON,
WM. H. ALBERTSON,
JOHN D. CARLISLE,
Advisory Board."

Henry Reeves of Stacy Reeves & Sons says:

Sympathetic strikes have demoralized the building trades. One trouble is no sooner adjusted than another branch of the trade finds some cause for complaint, and all building operations are brought to a standstill again.

I am not a member of the advisory board, but I understand that the members of the Building Trades' Council are themselves in favor of arbitrating disputes if a satisfactory plan can be found. The present action will bring the matter to an issue, and I believe that an amicable adjustment of all differences will result.

All builders in this city will unquestionably abide by the action of the advisory committee. In fact, the committee is but setting the date when the action previously determined upon by the master builders will be made effective.—Architects' and Builders' Journal.

It is undoubtedly possible to make paint hold to yellow pine and cypress quite as tenaciously as to white pine and poplar, but not by the same treatment. The first-named woods are resinous and full of paint solvents, therefore this resin must either be sealed in the wood or made to combine into a firm compound with the primer. To accomplish the first-named result shellac is about the only available material, and if used should be applied over the entire surface and not merely at the worst spots. To accomplish the second-named objects perhaps a small proportion of good hard varnish gum and a little turpentine in the priming coat might prove effective.

Speaking with diffidence on a subject yet open to experiment, it might be well worth trying a priming coat of pure zinc in refined oil with about one per cent of high-grade kauri and turpentine rubbing varnish; to be finished with two coats of straight zinc in refined oil, with or without a proportion of lead or whiting. The French authorities generally recommend the grinding of some whiting with their zinc.—Exchange.

WILL EXHIBIT AT ST. LOUIS.

Mr. Albert Kelsey of Philadelphia, the architect who was instrumental in having the St. Louis Fair authorities give up a certain section of their fair grounds for a municipal exhibit, which will present all phases of the management of cities, has just returned from a trip abroad. Mr. Kelsey's special object on this occasion was to look into the municipal questions, and especially to visit the municipal exhibits at Dresden.

In speaking of his trip Mr. Kelsey said:

"I visited eleven cities in six different countries, besides making a careful study of the municipal exhibit at Dresden. M. von Wincxtenhoven, the Belgian minister of foreign affairs, promised that his government would send a representative exhibit for my department, though Dr. Theodor Lewald, the imperial commissioner-general of Germany, was not to be seen, owing to sickness, and M. Michel Legrave, the commissioner-general for France, was absent when I was in Paris, yet through their secretaries I was assured that the exhibits I applied for would be available.

"I was sent abroad to get out-of-door exhibits especially. Full-size lamp posts, trolley poles, drinking fountains, tree guards and pavement grilles, kiosks, etc., and especially such combinations of street furnishings of an artistic character as tend to reduce the unnecessary cluttering up of highways. We want similar exhibits from American cities and manufacturers, as well as samples of paving, sections of sewers and conduits.

"The Dresden exhibition is exclusively a municipal exposition by German cities and German manufacturers, and may hence be studied without coming in contact with the usual distracting influences of unrelated classifications.

"I was amazed at the scientific display at Dresden, but in Berlin, Cologne and Munich, the only other German cities visited, the 'municipal housekeeping' did not seem to be quite up to French standards. Whether some of their paraphernalia and some of the new systems now being installed are not more advanced is a question I cannot answer after so superficial an examination. I wish to refer all who are interested in civic problems to the admirable catalogue of the Dresden Exposition. In it all exhibits are outlined, and the cost of the improvement, the date of its execution and the name of the architect and engineer in charge are given. It will be interesting to many to learn how cheaply many great public works in Germany have been executed, as all who have traveled know with what thoroughness and foresight the work has been done.

"The World's Fair is attracting much attention abroad. I was surprised to find how well it had been exploited and how many people beside the officials I saw showed an interest in it. Of course, there is somewhat of an impression that exhibitions are becoming too frequent. Some seemed mostly to think that while St. Louis might hold the last great international exhibition, special exhibitions like the one at Dresden will increase in number."

Mr. Kelsey is very enthusiastic about the municipal exhibit at St. Louis, and thinks it will mark an epoch in American municipal affairs, as all those who have anything to do with cities will be able to see displayed the various methods and means of making a city not only beautiful, but comfortable and convenient from the point of view of freight and passenger traffic, public buildings and business and social needs.

A very important accession to the number of drawings and paintings in this country by J. M. W. Turner has just been made through the gift of Turner's "Devonport" to the Fogg museum of art of Harvard university. The drawing, executed in water-color during the middle part of Turner's career, was among the 57 which were owned by John Ruskin and exhibited in London in 1878, and again in 1900. It comes to Harvard as a gift from Charles Fairfax Murray, a well-known collector and dealer in London. Mr. Murray was at one time a pupil of Ruskin's. This drawing is distinguished, furthermore, as one of those which Ruskin held in highest esteem and of which he wrote:

"No more wonderful drawing, take it all in all, exists by his hand than this one, and the sky is the most exquisite in my own entire collection of drawings. It is quite consummately true, as all things are when they are consummately lovely. It is, of course, the heaping up of the warm rainclouds of summer, thunder passing away in the west, the golden light and melting blue mingled with yet falling rain, which troubles the water's surface, making it misty, altogether, in the shade to the left, but gradually leaving the reflection clearer under the warm opening light."

The growth of the Turner collection at Harvard illustrates the usefulness of a museum in a university as a depository for a selective, yet comprehensive, exhibit of the work of great masters and important periods in the history of the fine arts. The Fogg museum at Harvard is unique among the world's art museums in that it receives art treasures solely at their educational value. Such institutions as the Boston Museum of Fine Arts, the Metropolitan Museum in New York or the Art Institute in Chicago necessarily accept works of art that are interesting from various points of view, whether historical or decorative, or constructive or even scientific. But the Fogg museum stands for an attempt to present to students of the fine arts typical work, whether original or in the form of reproductions, of the highest importance. —Correspondence Springfield Republican.

Elliott Woods, the superintendent of the Capitol, at the direction of the House commission, has designated Robert S. Peabody of Boston to act as advisory architect in the preparation of plans for the proposed office build-in for the use of members of the House of Representatives.

Mr. Peabody has been president of the American Institute of Architects, is a well-known member of the profession, and the designer of a number of buildings at the Chicago World's Fair and at the Buffalo Exposition.

HITCHCOCK HALL.

The Plan.

Hitchcock Hall is 200 feet long, east and west, and varies in width, 35 feet in the center and 50 feet at the ends and is four stories high. The main front is on the south or campus side.

Long and dark corridors were not desired; small units or divisions of the student body into clusters were preferred. As a result, and as shown by the plans, the structure is divided into five separate buildings. Each has its entrance, its staircase and its baths, and so far as private rooms are concerned, is independent of its neighbors.

As there are portions of the end sections designed for the common use of occupants of the entire building, a vestibule corridor was built connecting the entrances of the five sections.

Mrs. Hitchcock wished to provide more than a mere collection of sleeping rooms—she wished to make a college home for young men. She believed that would require a library and sitting room, a chance for a breakfast before leaving the building, a place to go when ill.

The east section is largely devoted to these purposes, and contains a memorial library containing a portrait of Mr. Hitchcock, his favorite books and the oil paintings and ornaments from his home. Adjoining the library is a breakfast room connected with a large kitchen in the basement—and rooms are provided near by for a housekeeper.

In the fourth story is a hospital containing a ward for five beds, a nurse's room, bath-room, serving room and diet kitchen connected by dumb-waiter with the basement kitchen. A hand elevator is provided to carry patients to the hospital floor.

In the basement of the west or corner section is a club room for recreation purposes.

Reference to the plans will show that various types of rooms are included. All have large closets. Some are single, some with a bed alcove, and others with two. Suites of studies with one or two bedrooms are also arranged to meet the varying demands.

Every room is finished with red oak trim and floors, and has walls painted with varying colors in oil. Each is heated by steam, lighted by electricity, and a large portion have open fireplaces. All portions, both public and private, have been furnished by the University with beautifully designed oak furniture selected to conform with the finish and character of the building.

View from Fifty-Seventh St. and Ellis Ave. HITCHCOCK HALL — SNELL HALL Dwight Heald Perkins, Architect, Chicago.

Marble bath-rooms are located on every floor of each section, so that a complete set of fixtures is furnished for every four students.

Construction.

The structure of the building is fireproof throughout. The walls are of masonry, exterior ones being built of buff Bedford stone. All floors and the roof are built of steel beams and fire-clay tile, and all partitions are of tile. The roof is covered with red roofing tile, and all sheet metal work is copper. The stairs are of iron and marble, and in no case is wood used structurally.

Design.

It was desirable to conform to the general character of the other buildings of the University enough so as to avoid radical divergence without copying all of their

qualities. It was also desirable to be governed by the conditions of the plan. The result shows the influence of the Gothic, and is nearer related to that style than to any other, though it does not adhere strictly to that.

The detail is all original, the ornamentation being derived from various wild plants and prairie flowers which grow in the country around Chicago. The designs which are derived from plant forms are all conventional—no hidden significance is aimed at—they are simple ornaments designed to make an interesting play of light and shade and a proper finish to the structure from forms already loved by the people for their natural beauty.

NEW BUILDINGS SHOWN IN COLORS.

Those water-color pictures in perspective, commonly made of large buildings by the architects who design them, have for a dozen years past become more and more important as adjuncts to the successful practice of architecture. The French architects frown upon these feats of the imagination as containing the possibility of misleading those to whom they are especially addressed, and in particular discourage the use of such drawings in architectural competitions. In this country, however, pictures of the kind are made with increasing elaboration of detail, especially as to surroundings and atmospheric effect. Every considerable architectural office has one or more men who can produce such colored drawings with picturesque effect, and there are some men in New York who give their whole time to this kind of work.

In earlier work of the kind the building to be presented in perspective was drawn with mathematical stiffness, rather crudely colored, and supplied with a few highly conventional human figure—gentlemen in high hats and ladies with parasols—to indicate proportions. The older school of architects would have been rather shocked at any attempt to present such a picture in natural colors, and at a substitution of realistic figures of men and vehicles, instead of the well-established conventional population of the sidewalks. The attempt to make a picture in any true sense of the word would have been regarded as an impertinence. Such drawings were often made by men unskilled in color, were produced in a few hours, and cost very little. The most skilled specialists of today, however, produce astonishingly realistic effects. The projected building is given in its proper colors, along with several adjoining structures, and sometimes a whole block of the street. Men, horses, street cars, automobiles, all the characteristic life of the street are introduced with conscientious attention to realistic effect, and an abundance of atmosphere is given. Such pictures are the result of careful studies on the site upon which the building is to be erected, and of many hours' labor in the studio.

With this change in the method of doing such work the cost has increased. A well-executed picture of the kind commonly costs from $150 to $250, and some fetch as high as $1,000. Where the building is important the picture is made very large, so that there is abundant opportunity for striking effects. Some of the most successful specialists in such work earn handsome incomes; one in New York is reputed to earn $20,000 a year merely as a colorist of architectural drawings in perspective. Some in doing such pictures for architectural competitions work for a contingent fee. The price is low unless the architect for whom the drawing is made shall win the competition, in which case the fee is an extremely handsome one.

A technical knowledge of architecture is almost a necessity for success in such work. Able architectural illustrators like Pennell have done such pictures with great success, but some skillful landscape painters have utterly failed. Most of those now executing such drawings in New York have the double education of architect and painter, and while nobody pretends that work of the kind occupies an important place in the realm of art, since more or less elaborate drawings are made without regard to the artistic interest of the buildings represented, the best of such work is not altogether despised even by able landscape painters.

After colored drawings in perspective have served their immediate purpose of illustrating to the owners of the building what the projected structure is to look like, they are preserved by the architects, or sometimes kept to be hung conspicuously in the completed structure. In a few cases the man who executes such work keeps it himself or sells it at a handsome price. Such paintings are more and more conspicuous at the Architectural League exhibitions.—Architects and Builders' Journal, Baltimore, Md.

BUILDING FOR THE PORTLAND EXPOSITION.

The plans for the buildings of the Lewis & Clark Exposition, which is to be held in Portland, Ore., next year, are now assuming shape. The report of Superintendent Oscar Huber shows that the main structures will consist of the States Building, Machinery Hall, Festival Hall, Forestry Building and the Lewis & Clark Memorial Building. The States Building, as outlined, will be a structure 440 feet long by 200 feet wide, and is intended to hold the exhibits from all the states participating. A separate annex is to be provided for agricultural and horticultural purposes in case it should become necessary. The architecture is to be of the French Renaissance. The Machinery Hall is to be of the same style and 400x100 feet in size. The Festival Hall, or Musical Pavilion, will be of liberal proportions, designed for large gatherings in connection with band concerts, etc. Its acoustic properties will be given special attention. The Forestry Building will be unique in style, and is designed to show the natural timber resources of Oregon. Large logs with the bark undisturbed thereon will form the walls of the building, and huge sawn timbers, the beams and girders. Trees will form the pillars supporting the verandas. All the different woods found in the state will be employed in the construction. The other buildings will be appropriate to the purpose for which they are intended.

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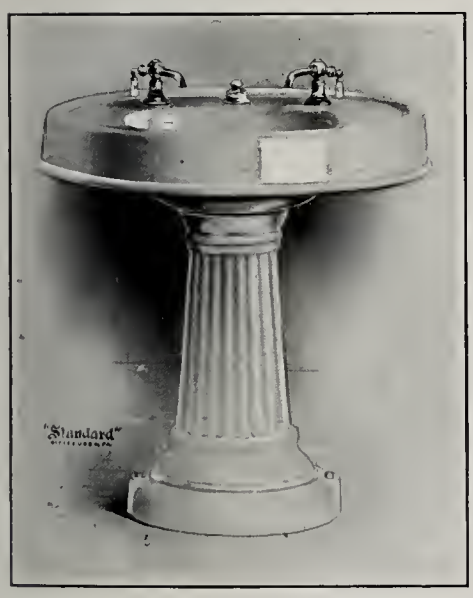

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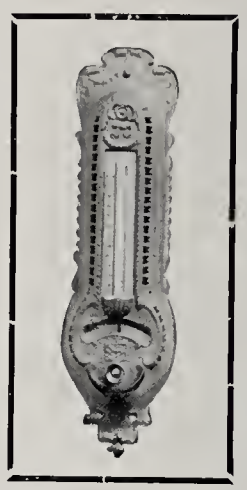

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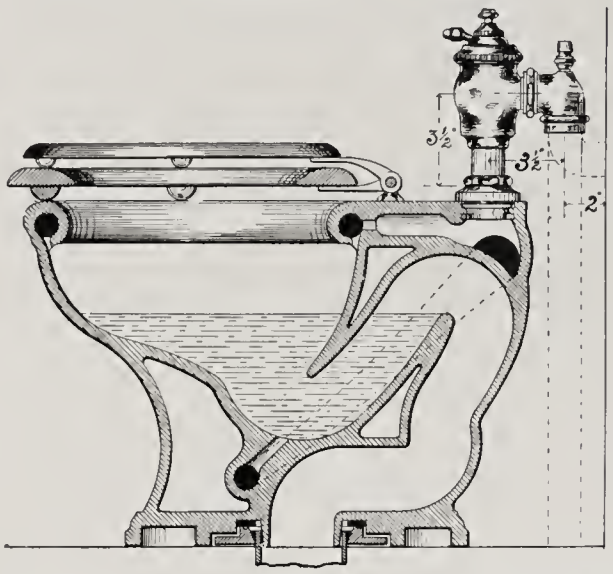

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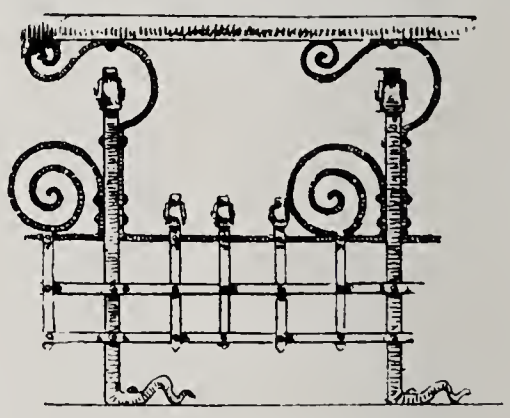

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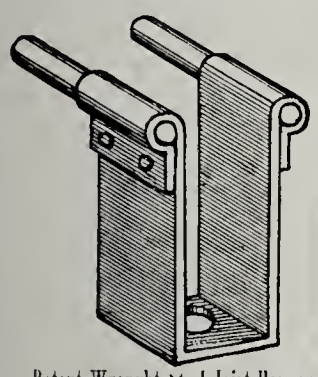

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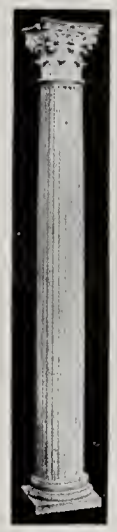

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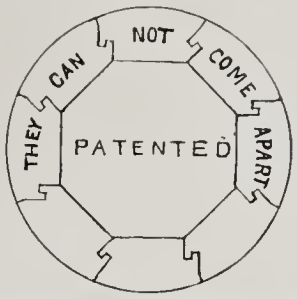

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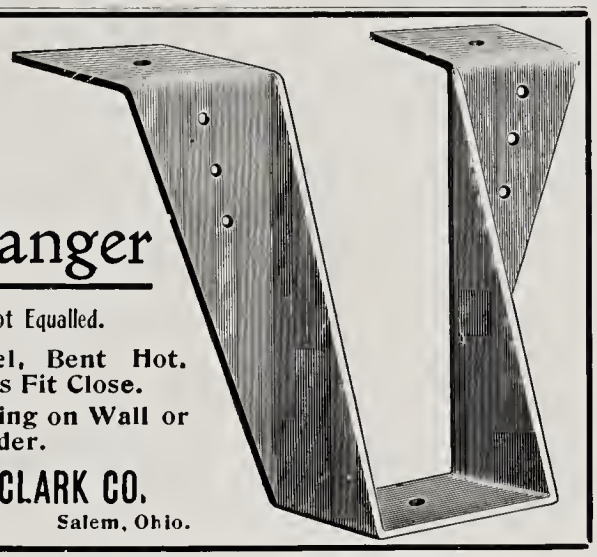

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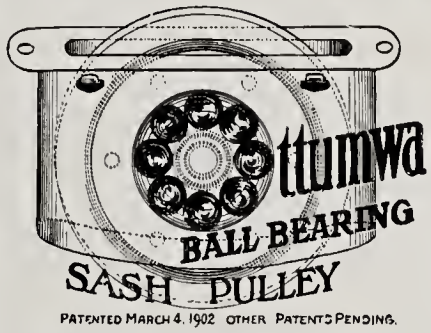

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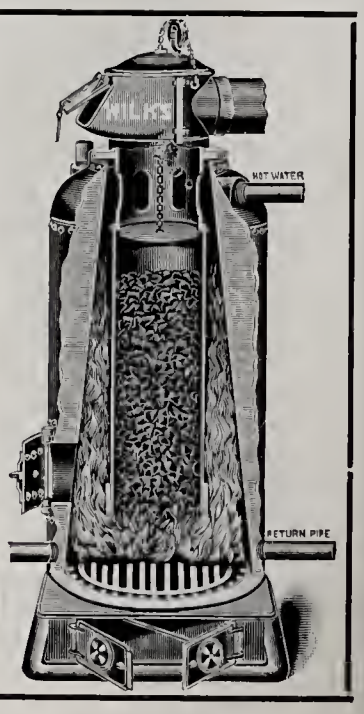

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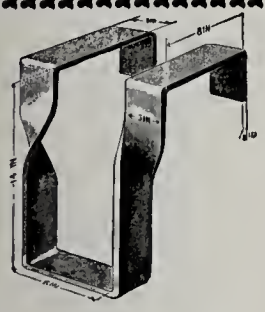

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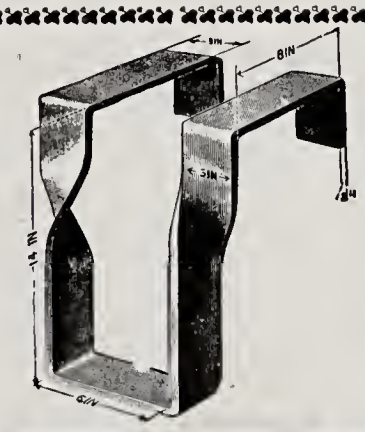

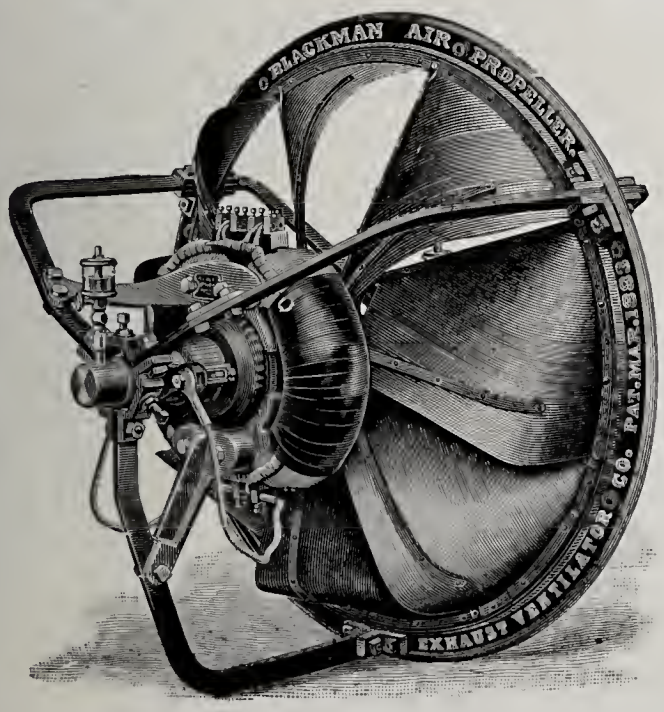

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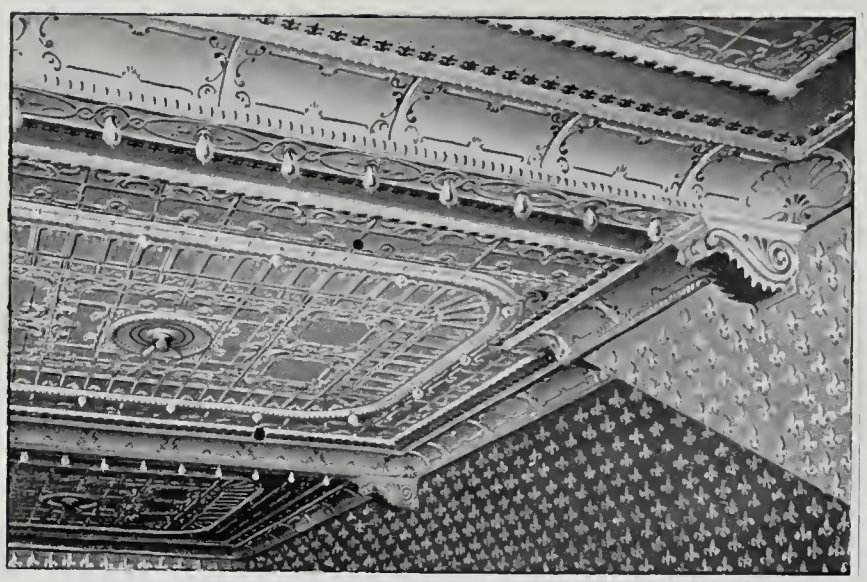

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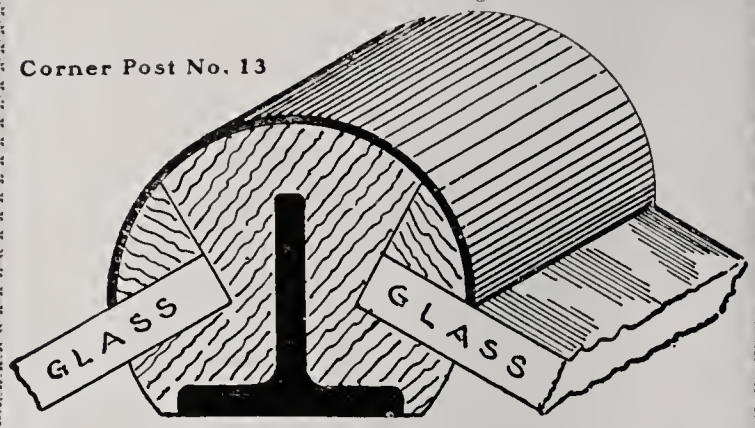

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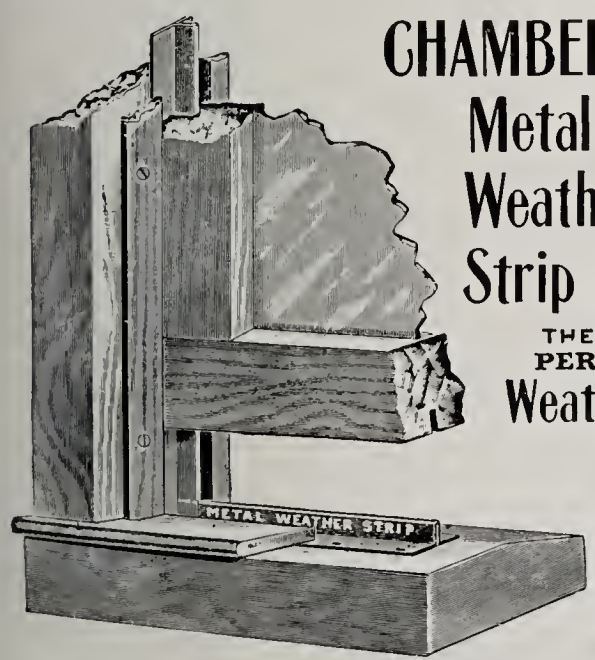

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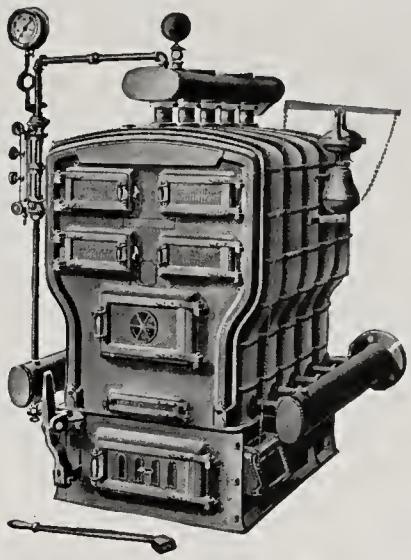

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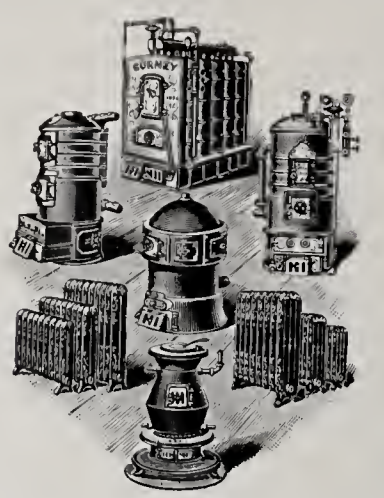

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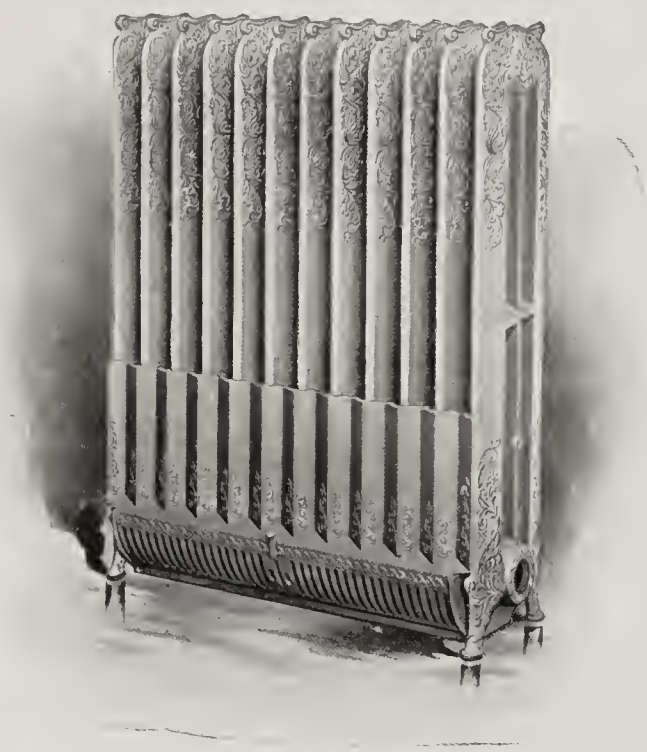
ARCHITECTS SHOULD HAVE THIS CATALOGUE.

The U. S. Radiator Co., with Northwestern headquarters at 432-434 Guaranty Building, of this city, hands us copy of their new catalogue which is gotten up in a manner to do credit to their very complete line of radiators.

Among the additions to their line this year, we note the most up-to-date arrangement for direct and indirect work which we illustrate herewith.



"TRITON" DIRECT AND INDIRECT RADIATOR.

On page (20) they show the new Triton five column radiator which is made in 12½, 14½ and 16½ inch heights. On page (18) is shown the new wall radiator, which is something entirely new in this line. Each section contains one foot of heating surface, and can be assembled in any unit desired. Page (26) shows a wall box for the direct-indirect radiator, also pedestals to be used where they are required to raise the radiator above the floor. These pedestals are made in half-inch sizes, ranging from one inch to five.

"Triton" radiators in 1, 2, 3 and 4 columns are so well known in the Northwest that it is perhaps unnecessary to say anything further about them. They are acknowledged to be the most efficient in the market, and has been installed in some of the most representative buildings in the Twin Cities, among which are the Minneapolis Gas Light Co. Building, New England Furniture & Carpet Co., Law Library, State University and Deering Building, of this city, besides Foley Bros. & Kelly and Gordon, Ferguson, of St. Paul, and numerous others throughout the country.

Mr. Warneke, northwestern manager, would be pleased to forward copy of new catalogue upon application, and no architect or steamfitter can afford to be without this book, embodying as it does, all the different styles of radiation made by the largest exclusively radiator manufacturers in the world.

THE PIONEER ROOFERS OF THE NORTHWEST.

A concern that can be considered as pioneers in their line in this section of the country is the Scribner-Libbey Co., of St. Paul, Minn. The firm was organized in 1870, nearly thirty-four years ago, and was incorporated as long ago as in 1883.

When the company was first formed nearly all the work they did was of a local character and confined mostly to the city of St. Paul, but a third of a century of business in this line, has marked a great change in the geographical territory which they cover.

Now this old pioneer establishment has almost a national reputation, their patronage extending to nearly every state in the Union. The personnel of the company now is as follows: Wm. Rhodes, president; A. G. Staples, vice president, and Geo. H. Ranny, secretary and treasurer. They are men who are well and favorably known in business as well as social life.

This concern recently issued a beautiful catalogue which is now before us, and it will compare favorably with any we have yet seen in that line. It is nicely printed on good paper and contains illustrations and descriptions of everything that can be manufactured in skylights, cornices, window caps, corrugated iron, fireproof doors, shutters and windows, while at the same time they are always willing to make estimates and manufacture from special drawings of the architect when desired.

Due credit should be given to such concerns as the Scribner-Libbey Co. for the building up of the reputation of St. Paul as a leading manufacturing center, as a large amount of capital as well as many employees are necessary in the conducting of such a large business. Messrs. Scribner-Libbey Co. will be pleased at any time to send their handsome catalogue to any owner, architect, contractor, or dealer in sheet metal goods upon request.

A PROMINENT AND SUCCESSFUL CONCERN.

The Celadon Roofing Tile Co., whose offices are located at 156 Fifth avenue, New York, and in the Marquette building at 204 Dearborn street, Chicago, with Geo. H. Lawes & Co., of Minneapolis and St. Paul, as its Northwestern Agents, have built up a most enviable reputation as manufacturers of high grade roofing tiles, as well as for square and honorable business methods.

Recently the company received quite an impetus in its business by a new election of its officers. Mr. William R. Clarke, who formerly held the office of vice-president and treasurer, has been elected to the position of president and general manager. Mr. C. Lyton Ford, a man of wide experience in commercial lines, has been elected to succeed Mr. Clarke as first vice-president, and Mr. E. S. Marvin, former superintendent of the American Temperance Life Insurance Association, has been chosen treasurer. Mr. Henry S. Harris, who was formerly located in Minneapolis, where he has many warm friends and acquaintances has been elected second vice-president. He together with Mr. Alvord B. Clarke, the general superintendent has charge of the western business, with their offices in Chicago at the address above mentioned.

The Celadon Roofing Tile Company has furnished tile for hundreds of the best buildings in the country, including government and public buildings as well as many of the best private residences. They are furnishing tile for the roofs of twenty-six large buildings of the Army and Navy Hospital at Washington, D. C. The company manufactures hard-burned, vitrified tiles only, which are distinguished for their even color throughout their entire thickness, and for an almost complete absence of porosity, thus showing the perfect annealing of their substance, which can only be effected by careful and scientific methods of burning when applied to a superior clay or shale.

The company has recently added two new kilns and extensions to its factory at Alfred, N. Y., which together with the additional workmen secured, increases its annual capacity by over forty thousand tile.

The company is one of the most prominent and successful of its kind in existence.

NATIONAL FIRE-PROOFING COMPANY.

The National Fire-Proofing Company of Pittsburgh, New York and Chicago, have recently opened offices in Minneapolis at No. 216 Lumber Exchange, Harold Johnson being appointed their Northwestern Agent. They intend to make an aggressive fight for a share of the business in hollow tile construction, and have just succeeded in securing a contract for all the hollow tile work at the new Cream of Wheat building. This will be an ideal construction with large 16 ft. span segment arches for the floors, somewhat similar in design to the Hennepin County Court House, which work was executed by the predecessors of this Company. They have also secured a contract for a fireproof floor on the first story of the C. J. Martin residence, using the Johnson system of long span flat floor arches similar to the work executed by this same Company at the Asbury Hospital.

Mr. Johnson, their local representative will at all times be prepared to submit designs and estimates for all classes of work in the line of hollow tile fire-proof construction.

WORTHY OF THE HIGHEST PRAISE.

Coulson Patent Corner Post and Bar.

This corner post and transom bar combines for store fronts the special advantages of least obstruction to light, greatest strength for holding large windows safely, and least danger and trouble in setting or replacing large plate glass.

The Coulson Improved Corner Post, with glass plates attached, is a similar section of a transom bar. Instead of the heavy wood frame which has been universally used, the Coulson is made of a narrow, light piece of soft wood, with a groove in the back of which the angle of a steel T-bar is sunk and firmly fastened by log screws. The several pieces of glass being set and firmly secured by wooden stops, the advantage of an all-wood bearing for the heavy plates is secured with the rigidity of the iron T-bar added. The face of the posts and bars, together with the wood stops, which, altogether, make up the outside, may be covered with polished brass, sheet aluminum, oxidized nickel plate or copper sheating firmly screwed to the wood after the glass is set, and, when finished, presents the neat and light appearance of a single metal or wood strip between several plates of the windows.

NAMING A NEW TRAIN.

Finding an appropriate name for a new train is not an easy task, as many things must be considered.

The Great Northern Railway, in connection with the Canadian Northern Railway, inaugurated a new schedule between St. Paul and Winnipeg November 22nd, via St. Cloud, Fergus Falls and Crookston.

The new train is solid vestibuled, steam heated and acetylene gas lighted. The dining and sleeping cars are new and embody all the improvements known to the car builders' art. The dining car service, which is unexcelled, is to be one of the special features.

The name adopted for this train was the "Winnipeg Express," but as the running time from St. Paul to Winnipeg is fourteen hours and twenty minutes, the travelling public insists upon calling it the "Time Saver."

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As the years increase The Youth's Companion endeavors to keep pace with them in all that is wise, beautiful and progressive, and not only to retain, but to deserve the honorable and exceptionally high place it holds in the confidence and affection of three generations of readers. The greatest living authors in all branches of literature continue to contribute to it.

Among the important series of articles will be one on the occupation of the farmer in many parts of the world—in England, in Ireland, in India, in Argentina, etc.

The annual Announcement Number of The Companion, describing the principal features of The Companion's new volume, will be sent to any address, Free.

The new subscriber for 1904 will receive all the issues of The Companion for the remaining weeks of 1903 free from the time of subscription; also The Companion Calendar for 1904, lithographed in twelve colors and gold.

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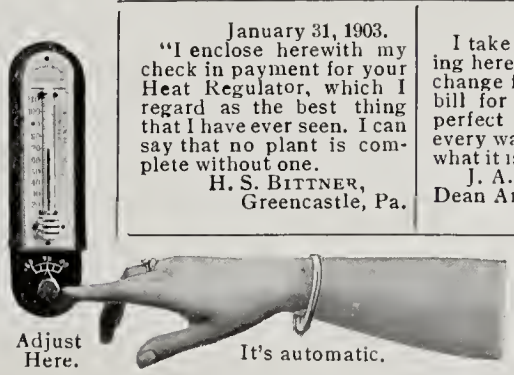

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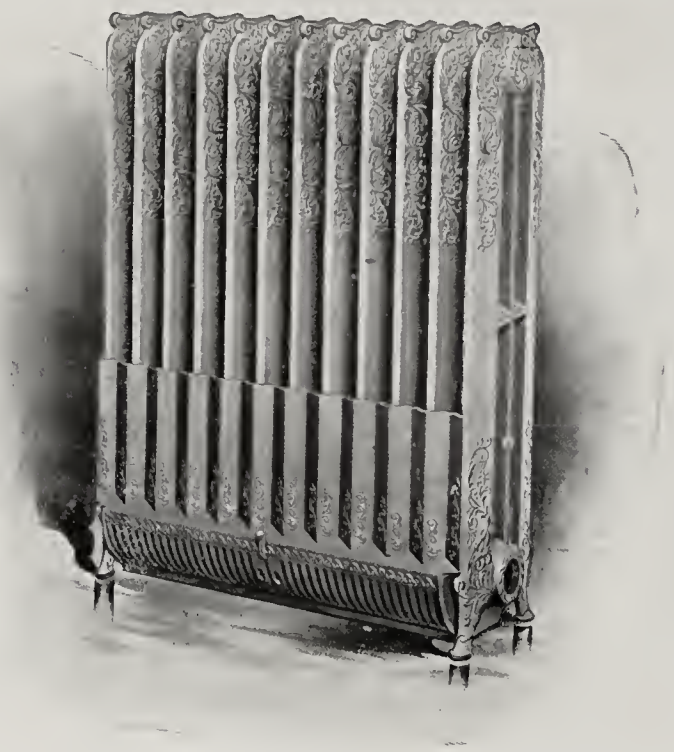

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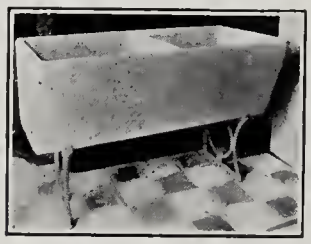

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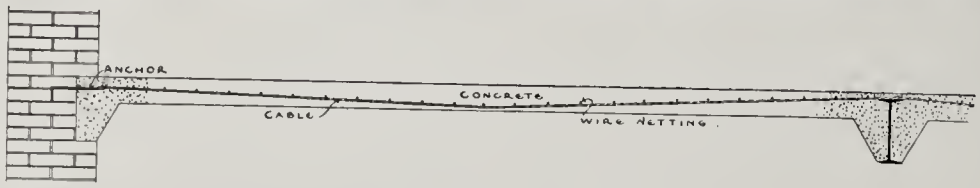

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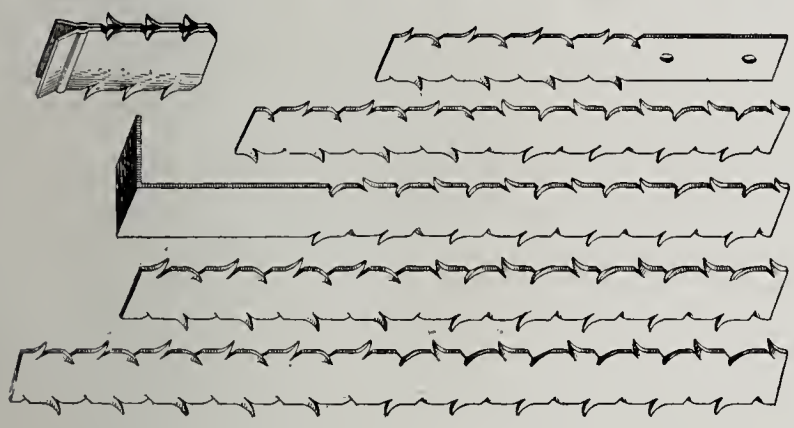

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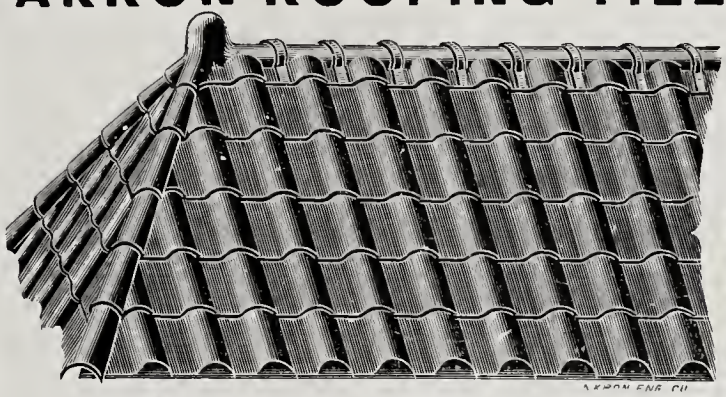

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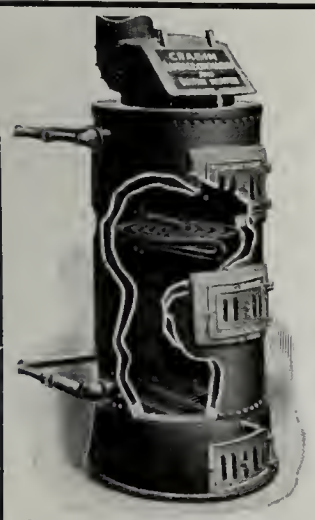

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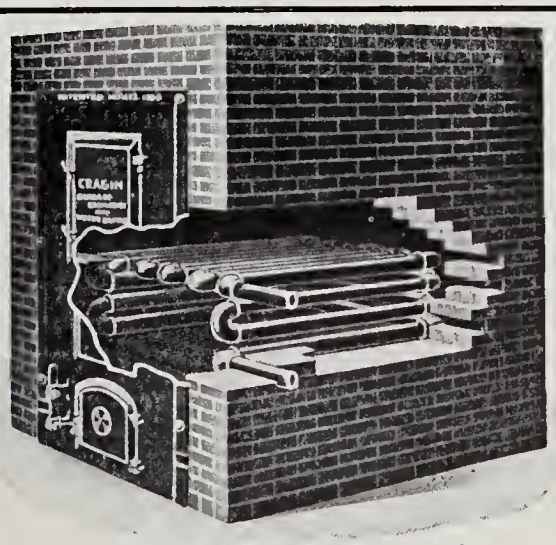

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While we expect to enforce our rights to the extreme limit of the law, we have made arrangements to **protect the public** and give builders and others an opportunity to procure the end-matched flooring **without danger of litigation.** This may be done through our licensees who, in order to identify the licensed flooring, will invariably mark it **Wilce Patent Jan 1st. 1805**, together with their own **name or trademark.**

Rumors are afloat that the price of end-matched flooring will soon be advanced two or three dollars a thousand. We wish to say that there is no foundation for any such rumor, and in this connection we ask you to

REMEMBER

FIRST. That the United States Circuit Court has fully sustained our Patent.

SECOND. That we not only consented but joined in the request to reopen the case to permit further evidence to be submitted.

THIRD. That this action does not indicate any change in the **opinion of the Court**, as it was by consent of both parties.

FOURTH. **That end-matched flooring has not been advanced in price** and **will not** be at any time, any more than is warranted by the usual conditions governing the lumber trade.

FIFTH. That there is not an **inch of waste** in laying end-matched flooring, and besides this there is a **great reduction in the cost** of laying it.

SIXTH. That it makes a better floor.

SEVENTH. That end-matched flooring will **always be sold** at a price that **insures the builder** a substantial **financial saving** over any other flooring in use of equal quality.

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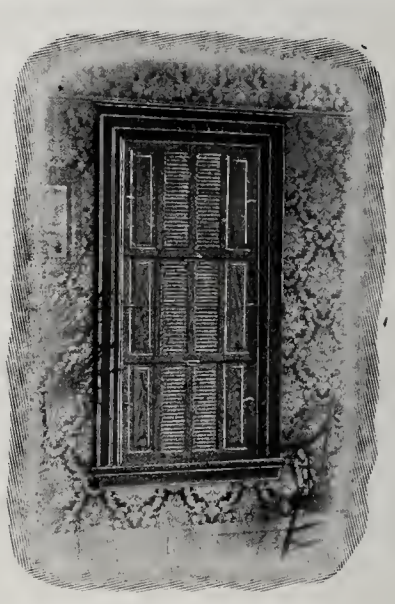

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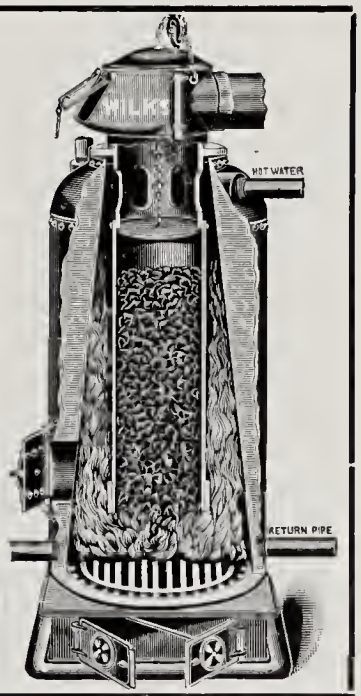

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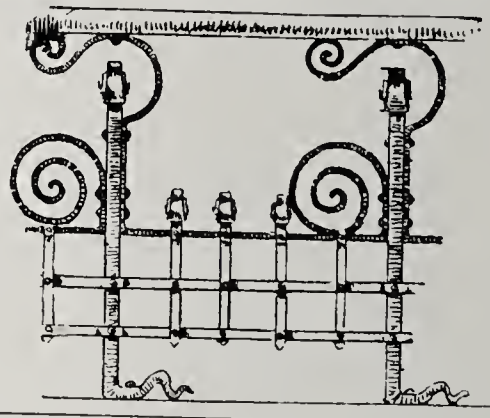

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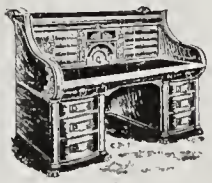

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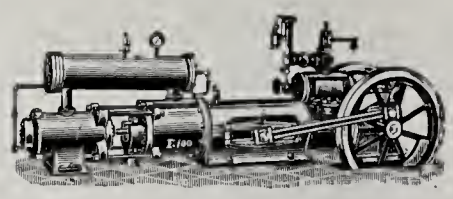

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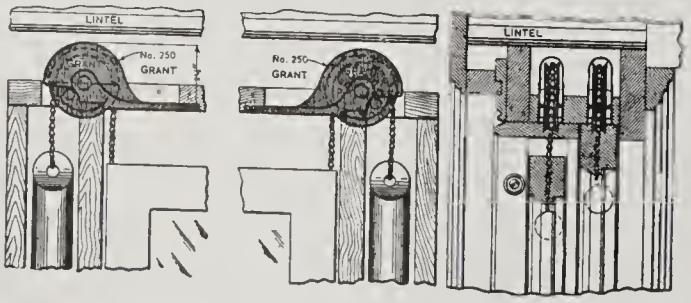

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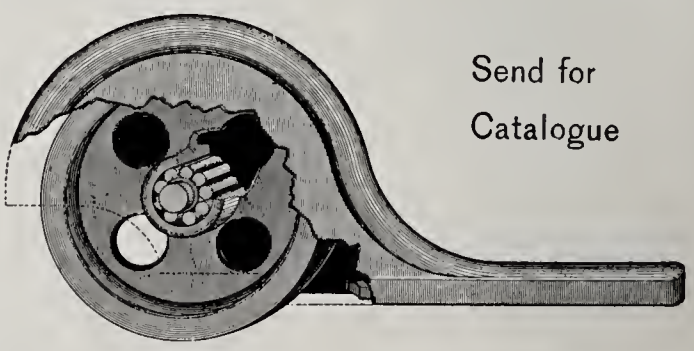

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AN ILLUSTRATED MONTHLY JOURNAL
DEVOTED TO ARCHITECTURE AND ALLIED ARTS

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SPECIAL NOTICE.

For the convenience of Architects and Draughtsmen the Western Architect has organized a Department of Information. Draughtsmen wanting employment, or Architects wanting draughtsmen or perspective work may apply to this department, which will place the parties in communication without charge.

SANDRINGHAM PALACE is pretty sure to have two new sleeping room floors, and fireproofed at that.

MR. CASS GILBERT, having succeeded in arranging for the most promising scheme of mural decorations for Minnesota's new State house of anything yet attempted in the country, is not resting on his oars, but is stirring up the St. Paul people and Park Board for a new arrangement of streets and new building regulations applying to the surrounding district, which will give the building suitable approaches in time. The undertaking, as outlined by Mr. Gilbert, will involve an outlay that will needs be spread over a number of years.

EVERY now and then the dailies make public the dreadful disclosures of some chemist who has become burdened with a knowledge of the composition of the foods on the market. One who made a wide investigation in New York, found nearly everything adulterated but the whiskey. Another, one of the "synthetic" sort, seeks to unburden his conscience by confession and tells formulas he has sold to manufacturers for making sweets and salads, jams and jellies, butters, beverages and many other foods, most of which he is free to say are unfit to eat, as well as fraudulent. Inasmuch as people live longer than they used to, it is clear that some great cause is at work more than counteracting the baneful effect of the bogus foods we eat. What is this beneficent cause? Surely nothing else than better housing; modern life could never hold its own against such victuals were it not for the great improvements in building. Indeed, if we read the dailies with diligence we will learn that in some directions the building arts have been too highly developed. Such a crowd of "well-dressed ladies" surrounded the scene of a recent swell wedding that a squad of 75 policemen were unable to make a clearing for the bridal procession—proof enough that building progress has reached a point where housekeeping has been made too easy.

MR. EDWARD ATKINSON is very optimistic about the future of New England—and other—"bog fuel." Those who have kept track of recent literature on the subject will recall that the composition of the muds that have been found suitable for working up into briquettes for fuel is by no means restricted to what have been known as peats. There are other bogs in abundance that are equally rich in deposited carbon, and the art of mixing is now so well understood that Mr. Atkinson predicts that localities favored with these bogs may, if they will, become largely independent of the coal mines, the bog fuel being little inferior to bituminous coals. Some of these bogs will, he predicts, furnish superior cokes. The success attending the molding of some of this bog fuel suggests the mixing of it with powdered lignite as a binder for the latter in making briquettes. The Dakota lignites appear to have been unable to compete with coal in heating or steaming tests at any considerable distance from the lignite quarries, because when freshly quarried they carry too much water, and when quarried for sufficient time for this water to evaporate they become badly slacked. Possibly the mixing of moderate quantities of suitable bog mud with the dried lignite might form a ready and cheap solution of the question.

WM. CHANNING WHITNEY, Architect.

Complaints about the high cost of building are largely the vogue just now, mostly coupled with reference to the high cost and inefficiency of labor. At a late banquet of the Builders' and Traders' Exchange of Minneapolis, which was so largely attended by guests from the outside as to be representative to a degree, this question of high cost was so often used in banter as to bring out serious statements of fact from one after another representing different staples entering into building. Everybody connected with building, has realized that building practice in the classes of buildings controlled by architects, has greatly changed and simplified within a decade or so, but the testimony of these men as to former and present prices and goods was needed to show the gain in quality and decline in price that has really been going on during the period.

Another feature of this gathering of builders which speaks eloquently for its future, was the sincere and intelligent purpose in evidence among them. One speaker after another showed that, before other things, he took a proper pride in the advancement of his calling, that he realized that hard, unsolved problems still obstructed its progress and was himself working on those problems. So marked was this feature of the evening as to leave the listener altogether hopeful for the future of building interests. Most wholesome views of the purposes of organization were also noticeable, as when Mr. Wallender proposed an application of the principle of the black list to rascally agents of employers' liability insurance companies who would try and get employers to help them escape payments to injured workmen. When he paid insurance companies for assuming the risk of injury to his men, he wanted the men to have the benefits, and he believed builders should have a system of information that should rule out the companies who tried to evade their agreements.

Dowie, having succeeded in getting his complex business freed from the court, will possibly see that a continued disregard of what people have elected to call economic laws will not tend to the ultimate success of his enterprises. If his people eschew tobacco and liquors they escape what is in effect a heavy tax on the average community, but if they support a goodly corps of guards to see that visitors and others do not use the weed, they are taxed all the same. Certain Semitical peoples have during all history abstained from the pig as food; and yet they have not impressed their neighbors as being so superior in mind, muscle or morals that any considerable number of eaters of pig have abandoned the practice. Abstaining from eating pig has never been recognized as an insurable asset even. Millions of most hardy and industrious people eat pig, and will continue to do so and to compete. A Zion City candy factory might easily supply the wants of that community—very good and wholesome candies can be made from materials of low cost—but it is doubtful if a working community can be sustained to any great extent upon candy as a food. If Zion-made candy is to be sold to outsiders, it will have to be attractive goods and well advertised through the ordinary channels. Lace is not a great staple and to be of value to Dowieites it must be to a great extent sold to the unregenerate. To create a market for any considerable amount of factory made laces might prove a task—but a light task compared with preventing fashion from shifting at any moment to some other kinds of lace or no lace at all. To suppose that any considerable number of people in this country can be supported by making lace in competition with the laces made by the peasantry of the old world, or that the people who buy such laces would continue to buy them if turned out in large quantities by factory methods, is to suppose Dowie's persuasive powers to be without limitations. Zion-made lace would suffer from wanting the traditions of old world lacemakers, and specimens of Dowie's strenuous talks do not impress one as likely to aid in establishing such an art atmosphere in Zion City as will offset the want of these traditions. Lovers of beautiful laces have not heretofore been known to be attracted by spectacular religious services by lace makers. The withdrawal of a large percentage of the workers for a costly crusade against a sinful far-away city may advertise Zionite wares, but signs do not point that way just now. Religio-industrial communities which have succeeded in this country have always used other methods, and it is to be hoped for the sake of the thousands of people who have thrown up their jobs and invested their savings in Zion that more sensible management may succeed.

CEMENT tests are coming to be so much more practical and instructive than formerly, and cement constructions in buildings so much more important relatively, that the whole subject should have the earnest and immediate attention of those having buildings in charge. In particular, the relations of cities to cement constructions need attention. These relations may be roughly stated thus: City authorities generally assume, probably under their police powers, to regulate building operations, and in the case of drainage systems not only to specify materials but to test workmanship. City ordinances in St. Paul and Minneapolis undertake to require a (quite inadequate) test for cements to be used in private building work. No such requirement is to be found in the building laws of most other western cities. The test referred to is only a strength test of neat cement—no test for fineness or boiling test is required. A neat cement might pass this strength test, if so coarsely ground that it would not have half the value in a mortar of the same cement properly ground. It might pass a 24-hour strength test if so charged with free lime as to be actually unsafe. But this is of little importance as the law is administered in both cities, for there is not enough testing done to seriously affect general results. Builders use such cements as they see fit and lose no sleep over interference by the authorities.

Engineering departments of cities test cements pretty thoroughly for city work—in some cities controlling to a large extent the grades and proportions of cement used in sidewalk work. Much cement is rejected by these engineering authorities as a result of tests. Minneapolis authorities have rejected some 7 per cent of the Portland cement offered the past season. Some of this failed in the boiling test and might have passed after standing a few weeks. Tests at both St. Paul and Minneapolis have revealed an effort on the part of some makers of Portland to get high 24-hour and 7-day tests at the expense of labor showings. St. Paul tests show one kind that falls off in strength after 30 days. This is very serious, as such cements would pass the ordinary tests, and perhaps a chemical test not now employed should be used to detect things added to the composition to produce these results. Domestic cements in this market are more uncertain of results than Portland. There are many reports of failure in private and country railroad work where only the test of actual use has been applied. The Milwaukee cement used in one private building proved entirely worthless, and when removed the broken stone of the concrete were saved by simply screening. Had common clay been used enough would have adhered to render the stone worthless. This company obtained the contract for supplying the city of Minneapolis for the season just past, but above 80 per cent of their cement was rejected by the official tester. They fared better in St. Paul, having only some 5 car loads rejected. Briquettes from one of these showed no hydraulic properties whatever. Their appearance after immersion and drying is about the same as would be that of so much unburned marl if manipulated in the same way.

As nothing is more certain than that these rejected cements find their way largely into building work, it must be obvious that building work suffers by reason of official tests as they exist. Cements rejected by cities may be only one per cent short of what is necessary to pass, or they may be entirely worthless, as were some lots cited above. Of course, no man of sense would undertake large and important work without being well assured of the character of cements to be used, and such works can well bear the expense of tests. Meanwhile it would be a comfort to people having smaller works in hand—works for which independent tests would be unduly burdensome—if they might have the benefit of official tests to show how cements from a given lot are liable to act. It would even be a comfort, if people might know that the sale of cements rejected by city authorities as unfit for city use were prohibited in the city—that if such could not be sent to the dump, they could and would be shoved out of town—with police escort if necessary.

HOBSON, the much saluted, is seeking a new introduction to the public by a bill that he is preparing to be introduced by a Southern congressman, appropriating $2,750,000,000 for naval construction during the next 20 years—$50,000,000 for the first year, $60,000,000 the second year, and so on till 1915, at which time the public will be accustomed to it and will be expected to deposit the remaining billion and a half to the credit of the department. Sec. Moody is clamoring for something over $100,000,000 for the navy the coming fiscal year, while ship subsidy people are confident of their standing with the powers that be. With anything like this amount of naval architecture, what will become of the sections that want public buildings?

By the way, it isn't much of a warship nowadays that doesn't cost $5,000,000 by the time it is placed in commission, and there is every reason to believe that a really skillful use of modern explosives would show every type of warship now afloat or building to be back numbers. An urban population of 500,000 might easily be supplied with public schools for $5,000,000, all of the most advanced type, too. How would the cost of keeping the warship in commission in peace times, if she were to cruise considerably, be so greatly different from the cost of running the public schools?

CONTRACTORS, if some reports are to be believed, are to meet combinations among workingmen by better organization among themselves, after which there is to be a locking of horns. Other reports have it that after this better organization there will be something nearer a clasping of hands—something like the "armed peace" of the greater political powers, none of whom cares to tackle another of its own size, but all of whom are anxious to show their prowess at the expense of small and poorly armed peoples. But the small and poorly armed peoples are now and then favored with a portly national debt, and call upon the bond holders to save them. So if contractors and unions are bent on raiding the people who want buildings, they may yet be baulked by the holders of the purse strings.

SIDEBOARD FOR F. P. SHEPARD, ST. PAUL, MINN.
French Renaissance Style.
Designed and Executed by
Wm. Yungbauer, St. Paul.

RESIDENCE OF F. B. FORMAN.

The F. B. Forman residence, illustrated in this issue of the Western Architect, stands upon a commanding site on the eastern shore of Lake Calhoun, the site of the old Lyndale Hotel, which was destroyed by fire some 15 years ago. The place contains several acres, the principal entrance being at the corner of Irving Avenue and Thirty-fifth Street, from which point a winding driveway passes under the commodious porte-cochere, and thence by a graceful curve to the stables located on the south side of the property, and out at the southeast corner.

The house stands back about forty feet from the edge of a bluff overlooking the lake, from which the ground falls away quite sharply to the boulevard some 25 feet below. This side of the house has a wide veranda the full length of the house proper, which is screened in and forms a most enchanting retreat in the hot summer-time, with its inside awnings, and set with tables, chairs, divans, etc. Steps at either end lead to graveled walks, which lead to a parapet with seats overlooking the bluff, from which may be had a most enchanting view of the lake and boulevard below; to the north is a pergola leading to the electric railway pavilion; to the south a walk to the kennels and stables where are kept the owner's fine collection of blooded dogs and horses.

The main frontage is toward the east, the entrance being under the spacious 2-story portico, with a balcony opening from the second story above entrance. This entrance leads into the 30x50 ft. living-room, which has heavy beamed ceiling, and is paneled to the ceiling in Flemish oak; at the left is a huge brick fireplace, with the staircase at the right and the entrance to dining-room at left of same; at the right end is a large bay-window nook, elevated several steps above the floor. This living-room has several pieces of antique furniture which deserve more than passing notice; the tall clock in the staircase angle is several centuries old; then there are two or three carved oak chests and cupboards which look the patrician in every line, giving a tone to the place which nothing else could.

The dining-room, 20x30 ft. in size, has a beamed ceiling and large brick fireplace and a paneled wainscot 8 ft. high, with plate-rail. A large ledge bay-window for plants is at the east end, and on the west both the dining and living-rooms open onto the broad veranda facing the lake. The dining-room is done in mahogany.

The second floor extends out over the veranda and contains Mr. and Mrs. Forman's sleeping rooms and four large guest chambers, besides baths, linen-rooms, etc., with recessed set bowls in each bedroom. At the north end of the hall is an attractive nook formed with angle-nooks for books, and a seat between under the hall window. Mrs. Forman's room deserves especial notice, being done in natural Georgia pine with ceiling beams, a picture rail and brick fireplace. A wide hall leads to the balcony over front door.

In the basement the owner has fitted up model bowling-alleys and billiard room in natural pine. There is a complete steam heating plant here, the house being intended for use the year around. The kitchen wing contains, besides the kitchen, a laundry, man's room, large pantries with refrigerator, etc., and above are the servants' sleeping quarters.

Besides the pergola already mentioned, the grounds have been enriched with an attractive pavilion near the main entrance to the grounds, and with marble statuary, griffins, settees, etc., besides the formal gardens, fountains, trees and shrubbery, and along the north and eastern lines of the property run hedges; all of which ensures a most attractive and original result in a few years' time, giving the owner all the benefits of a country place within easy reach of business by either auto, carriage or electric cars.

The place has cost upwards of fifty thousand dollars.

A Study in what now passes as the correct and neighborly thing among nations is given in a late number of the Canadian Architect and Builder. With a proper pride and a pretty modesty making the nicest of blends that journal tells of important orders for leaded glass received by a Canadian firm for works on this side the line. The principal material is American opalescent glass, upon which a duty of 20 per cent is paid when imported into Canada, and the finished work pays an import duty of 45 per cent when brought into this country. The Canadian Architect rightly gives the superior character of the work as the reason for the main transaction, and emphasizes this superiority by the statement that "this duty was added to the price and paid by the purchaser." Then comes a statement which is probably based more on estimate than knowledge, "Notwithstanding that a great deal of American ornamental glass is purchased in Canada, every obstacle was thrown in the way of the Canadian firm seeking to do business in the United States."

After this a case is cited where the shoe intended for the other foot is robbed of its pinch through the fault of the Canadian minister of customs. It seems that a Montreal church had given a large order for ornamental glass to an American firm, and the duties had been remitted because the glass was for religious uses, thus making "our so-called National Policy a farce."

What a mercy that the Mississippi, or the Ohio or the Ottawa are not picketed by rows of custom houses as are the St. Lawrence and Great Lakes.

COUNTRY RESIDENCE OF F. B. FORMAN, LAKE CALHOUN, MINNEAPOLIS, MINN. (SOUTHEAST VIEW.)
Edwin P. Overmire, Architect, Minneapolis.

(See Description and Floor Plans on Pages 18 and 19)

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THE ENTRANCE AND RECEPTION HALL TO Y. W. C. A. BUILDING, MINNEAPOLIS, MINN.
Wm. Channing Whitney, Architect, Minneapolis.

Photo by Western Architect Staff,
Carl Zeiss Probar Lens.

OF THE

RESIDENCE M. H. COOLIDGE, KENWOOD, MINNEAPOLIS, MINN.
Bertrand & Chamberlin, Architects, Minneapolis.

(See Floor Plans on Page 19)

Photo by Western Architect Staff,
Carl Zeiss Probar Lens.

RESIDENCE OF GEO. R. LYMAN, MINNEAPOLIS, MINN.
L. S. Buffington, Architect, Minneapolis.

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VIEW IN NORTH END OF LIVING ROOM IN F. B. FORMAN'S COUNTRY RESIDENCE, LAKE CALHOUN, MINNEAPOLIS, MINN.
Edwin P. Overmire, Architect, Minneapolis.

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PERGOLA AND GARDEN, F. B. FORMAN'S COUNTRY RESIDENCE, LAKE CALHOUN, MINNEAPOLIS, MINN.

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LIVING ROOM IN COUNTRY RESIDENCE OF F. B. FORMAN, LAKE CALHOUN, MINNEAPOLIS, MINN.
Edwin P. Overmire, Architect, Minneapolis.

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RESIDENCE M. H. COOLIDGE, KENWOOD, MINNEAPOLIS, MINN.
Bertrand & Chamberlin, Architects, Minneapolis.

(See Floor Plans on Page 19)

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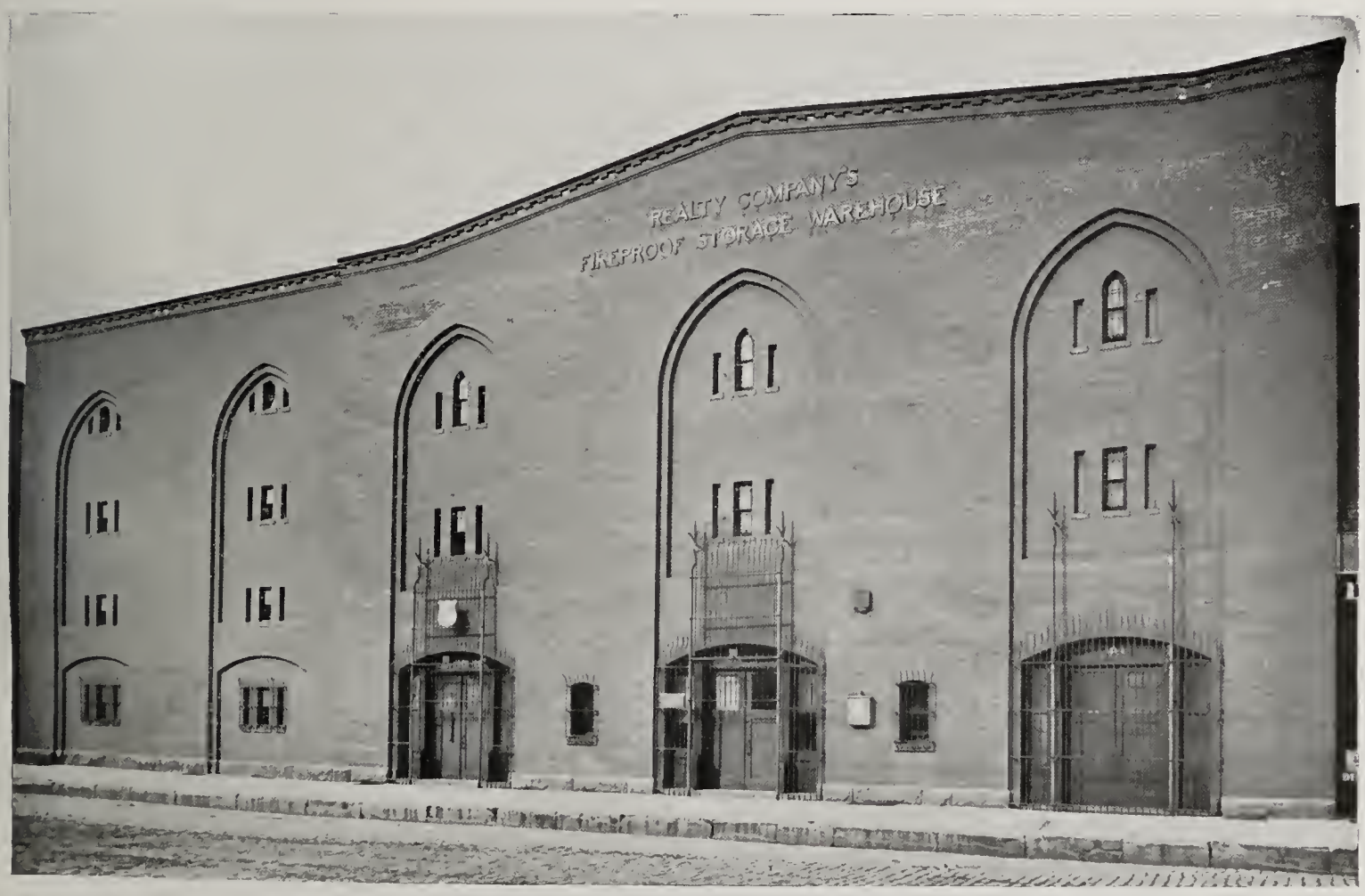
Wm. Channing Whitney, Architect.



REALTY COMPANY'S FIREPROOF STORAGE WAREHOUSE, MINNEAPOLIS, MINN.
Cass Gilbert, Architect, St. Paul and New York.

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VIEW OF VERANDA—COUNTRY RESIDENCE OF F. B. FORMAN, LAKE CALHOUN, MINNEAPOLIS.
Edwin P. Overmire, Architect, Minneapolis.

SOUTHWEST VIEW OF COUNTRY RESIDENCE OF F. B. FORMAN, LAKE CALHOUN, MINNEAPOLIS, MINN.
Edwin P. Overmire, Architect, Minneapolis.

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YOUNG WOMEN'S CHRISTIAN ASSOCIATION BUILDING, MINNEAPOLIS, MINN.
Wm. Channing Whitney, Architect, Minneapolis.

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ENTRANCE TO WESTMORELAND PLACE, ST. LOUIS, MO.

RESIDENCES, BERLIN AVE., ST. LOUIS, MO.

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PERGOLA AND GARDEN, F. B. FORMAN'S COUNTRY RESIDENCE, LAKE CALHOUN, MINNEAPOLIS, MINN.

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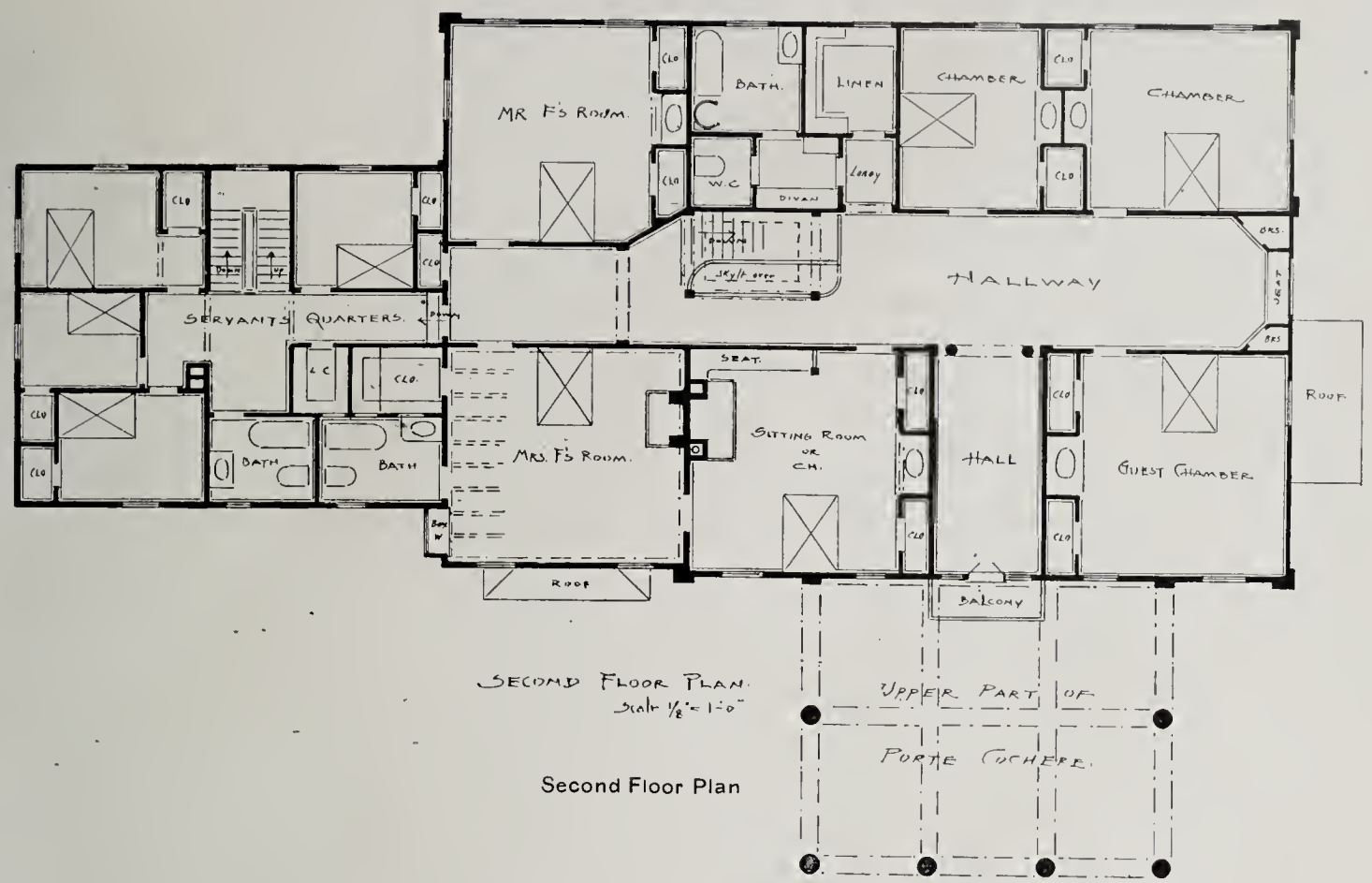
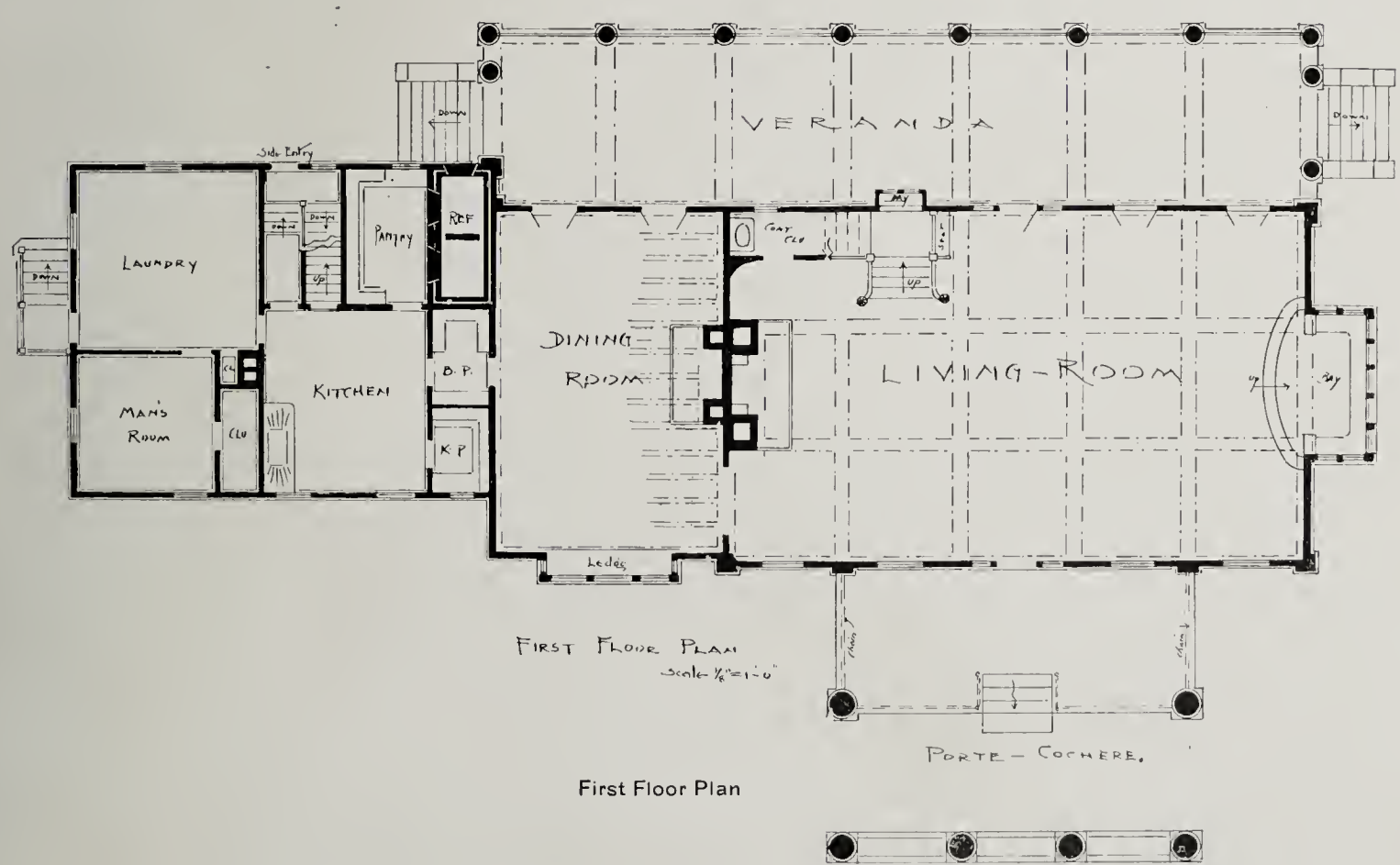


Second Floor Plan



First Floor Plan

FLOOR PLANS OF F. B. FORMAN'S RESIDENCE, LAKE CALHOUN, MINNEAPOLIS, MINN.
Edwin P. Overmire, Architect, Minneapolis.

A TRIP TO OLD SALEM, MASS.

By E. P. Overmire, Architect.

The average western man is usually surprised to learn that Boston observes two holidays during the year, to which he is not accustomed: Fast Day, which comes in April, and Battle of Bunker Hill Day, which comes on June 17th. The latter, while legally a holiday only in Charlestown, is observed by Boston generally since Charlestown became a borough of that city.

It was on the 17th of June, 1889, that the writer, in company with several fellow draughtsman from the office wherein he was then employed, had the pleasure of spending the day in Old Salem, renowned for its witches as well as its famous old colonial homes,

POST OFFICE, SALEM, MASS.

about which cluster so much of romance and history; situated about an hour's ride from "the hub." Well do I recall the difference of opinion of the members of our firm upon the holiday question at that time; the senior was of the opinion that we were having too many holidays, while the junior held to the opinion that we were entitled to them all, saying that if he had his way there would be at least one legal holiday in every month of the year, a sentiment to which we all most heartily voted yea. With Fast Day in April, Decoration Day in May, Bunker Hill Day in June, and the glorious Fourth in July, one cannot altogether blame the senior for his position, particularly if he look at it from that man's point of view, which makes all the difference in the world, I find.

Well, four or five of us got together and in due season arrived in the old town full of expectancy, and we were not disappointed in the least. Armed with camera, sketch-blocks, colors, etc., we were fully prepared to do full justice to the many good things which enrich the old place. We took a hurried glimpse of the business section, followed by a hasty trip through the aristocratic residence section, where we got delightful glimpses of such venerable places as the Nichols, Endicott, Forrester, Phillips, Emmer-

NICHOLS HOUSE, SALEM, MASS.

ton and others, whose very names conjure up visions of past glories. Especially interesting were the high old gate-posts still standing at the entrances of many of the houses, many of which appear in the accompanying illustrations.

This hurried, general survey of the field being concluded, we returned to the business section and adjourned to the old Essex House for dinner; in this ancient hostelry we saw the old mantel dating from 1801, which Frank Wallis has made so well known in

TYPICAL SALEM ENTRANCE.

EMMERTON HOUSE, SALEM, MASS.

his book on Colonial Architecture, and which has been so much copied since. This recalls a part of one of the verses of Oscar Enders' famous song, "Stoffa di Italiano," which was one of the songs so well enjoyed at the recent American Institute banquet at Cleveland, which runs as follows:

"Brunelleschi's name shone out in fame,
When he drew the Palazzo Pitti;
But, alas and alack! should he come back,
He'd find one in every city."

Our repast concluded, we visited the old Customhouse where Hawthorne worked, and many of the old-time houses in a more or less dilapidated state of repair, among them the Hodges, or Witch house (since destroyed), which had a good old colonial stairway, which has been much used like the mantel in the Essex House.

We now returned to the real scene of our labors, the fine residence section, and settled down to work studying, sketching and photographing until compelled to "fold our tents and steal away" back to the station in season for our train back to Boston; the station being below the street, which was a novelty then. Near to the station we saw the post-office, a recent work by Peabody & Stearns of Boston, which has become well-known through the architectural journals; a well studied effort in the style so dear to the local inhabitants.

At the time of our visit the Hon. Mr. Endicott was Secretary of War, and the Hon. Joseph Chamberlain had not as yet married into his family. We were shown over his premises and became quite chummy with the hostler and gardener, who gave us a great many private tips about the place and family, which were very ticklish to our ears at the time. The house being closed during the absence of the family abroad, as well as the fact that we were not properly accredited as upon our Newport trip, prevented our seeing the interior of these old houses, hence we had to make the most of what we could gather on the outside.

The privilege of seeing these noted old places and the natives, and through conversation and otherwise getting into personal touch with them—getting the local color that artists talk so much about, is something to be remembered most gratefully; it emphasizes the wisdom of the younger men availing themselves of the opportunity, while free to go and to stay as long as necessary, to acquire something of the nature and environment in which these people have been born and bred; an atmosphere to be found only in Boston and New England.

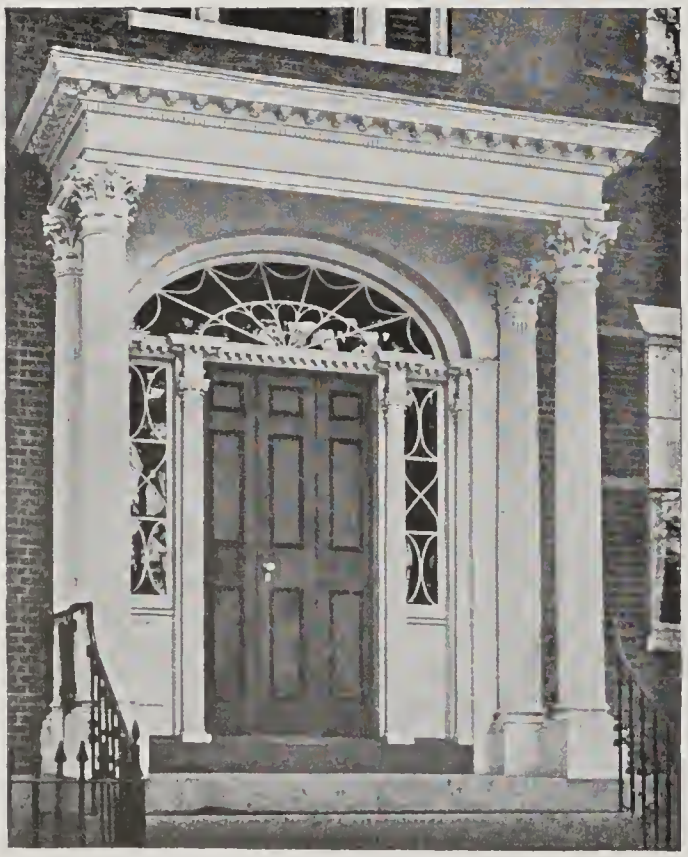
Permit me to urge upon all young men who are studying architecture the necessity of this personal contact, the acquaintance and fellowship of such people as one will meet while studying and working in the best Eastern offices, the study at first hand of the best in art, the advantage of the art exhibits, galleries and sketch clubs, which do not appear to flour-

ENTRANCE TO EMMERTON HOUSE, SALEM, MASS.

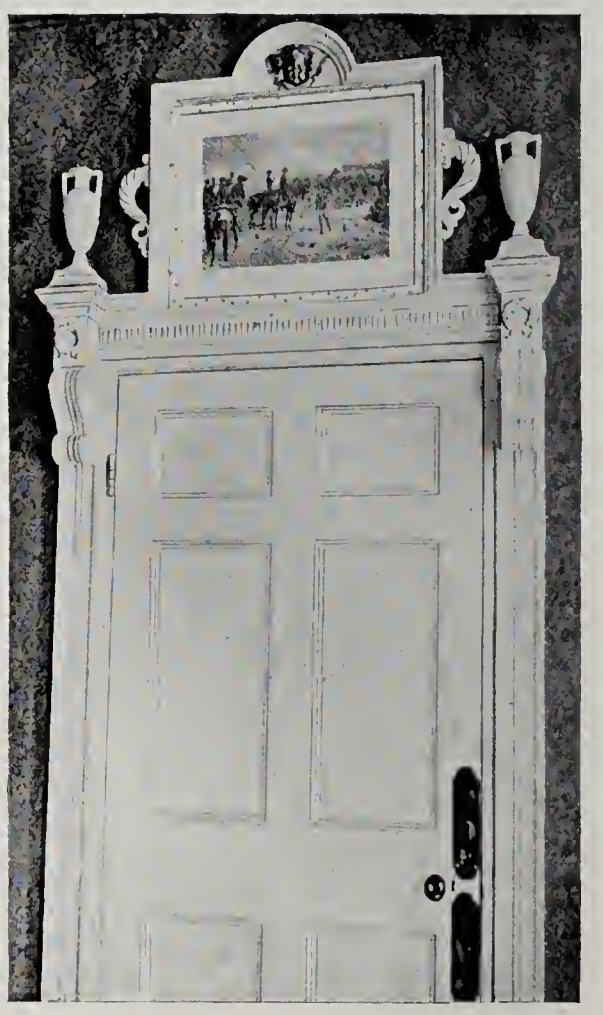
AN ENTRANCE, OLD SALEM, MASS.

ish in our Western soil. To my mind nothing can compensate one for the loss of these privileges; their effect upon receptive minds can only be broadening and ennobling, and to just that extent make the subject more susceptible to the best passing influences, making for both practical and artistic success.

After one has spent several years in such an atmosphere, he cannot consistently descend to the common practices which obtain in the average western office, whose one criterion of success is based on money alone, without any thought of the ennobling possibilities inherent in every man, which will lie dormant and valueless unless properly aroused and educated. Too commonly does the end sought justify the means, which, being construed into common English, means the abasement of the best that is in one's nature to the one consuming, base desire for wealth. Verily, what is one profited if he shall gain the whole world at the expense of all that is best in his nature, as well as the capacity to properly enjoy that wealth which he has so selfishly earned? For answer look at our greatest financial successes and compare them with others who were satisfied to be clean in dealing with their fellows, enjoying life while passing and achieving an old age full of the blessings that go with self-respect, and with it, necessarily, the respect of all who know them.



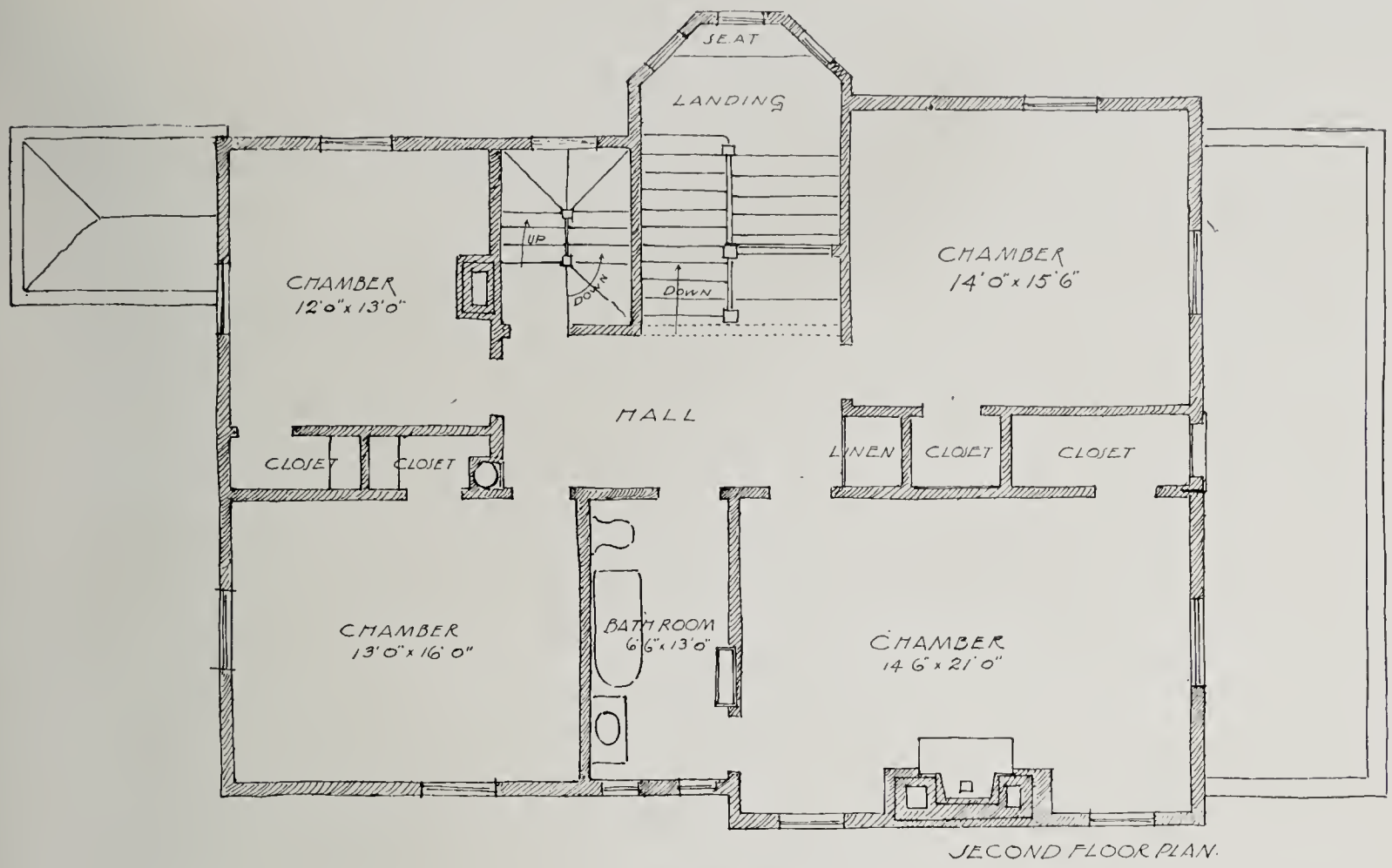
ENTRANCE TO PHILLIPS HOUSE, SALEM, MASS.



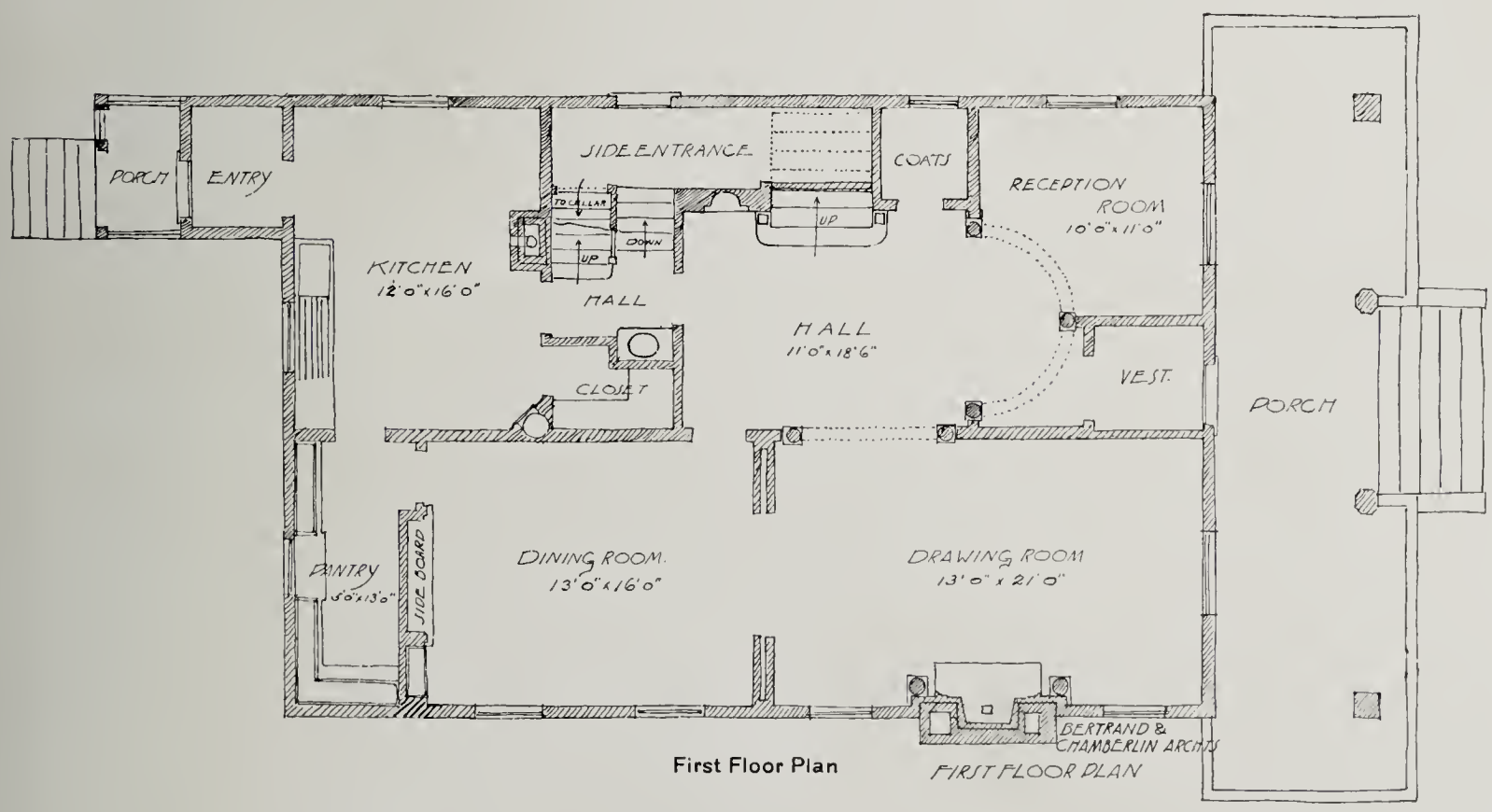
SPECIMEN OLD COLONIAL DOOR, SALEM, MASS.

Allen H. Stem, architect, St. Paul, has had his plans accepted by the New York Central railway for its new passenger station in New York city. There were numerous Eastern architects in competition. The building will be one of the finest passenger stations in the country.

Advertising is a plain business proposition, and should form the foundation of every business venture.



Second Floor Plan



First Floor Plan

FLOOR PLANS OE M. H. COOLIDGE'S RESIDENCE, KENWOOD, MINNEAPOLIS, MINN.
Bertrand & Chamberlin, Architects, Minneapolis.

DEVELOPMENT OF AMERICAN ARCHITECTURE.

It is often claimed that the United States has no architectural history and that little or nothing can be learned by a study of the architecture of the last two centuries in America. It is perhaps worth while to run over the work of these years and see if this is not a mistaken idea.

The first period of our architectural history was that which saw the development of the simplest type of settler's dwelling. Every house which is an honest expression of circumstances and surroundings is useful as an example. The log cabin, built with the by-product of clearing the land for cultivation, taught our New England ancestors the fine craft of woodworking, which still is found in the skillful handling of the axe displayed by the guides in the backwoods. It taught, also, first hand the art of dressing and framing timber, which would undoubtedly have had as marked an influence on early architecture here as it had on that of England in the forestry districts in the fourteenth and fifteenth centuries, but for the fact that, as soon as the country became fairly settled the classic influence, entirely predominant in the old country, took possession here and modified the frank expression of a timber frame.

The first period of our architecture terminated about the middle of the eighteenth century. Before that the type was an extremely simple building, with no pretense at being architectural in the sense of conforming to any of those rules which taken together form a style. The little old house of the Albees at New Castle, N. H., is an excellent example of this. A simple, quiet, lowly house, nestling under the great elms, its beauty lies in its restful character, its modesty and reserve. A very similar character is found in the Fairbanks at Dedham, and in a number of the early Rhode Island houses, like the Manton House, at Manton.

But this utter simplicity was running counter to the ever-increasing influence of English civilization and culture, which was rapidly taking the places of the simpler modes of living and methods of thought of the days of the settlers and pioneers. The houses of the governors of the States and of the merchants and of other prominent men were modeled on the houses which were common among people of that class in England. The handling of wood had, however, become so thoroughly ingrained in the American carpenter that the English types were modified by and made to conform to the conditions of wood construction.

The clumsy lap-boarding of England which one still sees occasionally, wide boards, overlapped and tarred, produced the shaved-pine clapboards. Neither tile nor slate were available for roofs, and to replace this the split shingle of spruce, pine or cedar was produced by the handy lumberman. This was the precursor of the modern sawn shingle. The house which was the outcome of this second phase was generally a two-story building—the early one was practically one-story and a big roof—with hipped or gambrel roof. The plan was more regular and the exterior showed more study of architectural precedent. Although the majority of this later eighteenth century work was executed in wood, there was among the wealthy a considerable use of the more durable materials. Brick was imported from England and Holland for New England, Virginia and New York magnates, and in Pennsylvania they used the native stone.

This brings one to the War of Independence, which made a considerable break in our architectural tendencies and traditions, and yet not as much as would have seemed likely, considering the momentous change in our position as a people. Before touching on this, however, let us just glance at another phase of architecture which existed here in the eighteenth century, but which had no influence until later events brought it in contact with us—that is, the work based on the late Spanish Renaissance, which, strongly rooted in Mexico and the West Indies, had spread into Texas and Southern California.—Architects' and Builders' Journal.

PAINTS IN ARCHITECTURE.

Has it ever occurred to any one that, in painting, different woods require different treatment? Of course, in ordinary practice knots and resinous places are "stopped" with shellac before painting; but we see every day the same general procedure used in the painting of white pine, yellow pine, poplar and cypress. That iron and steel work are not included in the same category is probably due to the fact that such work is under the control of engineers rather than of painters.

The painting of brick walls is mainly for the purpose of preservation, but the fact should not be forgotten that paint is an excellent preventive of dampness and that a house with well painted walls is dryer and consequently healthier than one with the walls exposed. The best paints for this purpose where the color is not an objection, are the natural ochre pigments united with zinc oxide. Thus yellow ochre and zinc would give a pleasing buff. Whatever impairs the usefulness of a paint by attacking its tenacity and waterproofing quality, is to be avoided.

It is to be hoped that the merits of a new process for puddling iron have not been overstated in the reports. The machine is said not only to effect a saving in labor which will make iron a formidable competitor of steel in cost per ton, but that fine grades of iron can be assured. The experience of people who build with latter-day steel in sheets and tubes has created a great longing for good iron in its place. All sorts of reasons have been given for the quick corrosion of sheets and tubes since low-priced steels displaced iron, but none seem so good as the reason that iron is the better.

MONUMENTAL ARCHITECTURE UNVEILED.

The Completion of the Greatest World's Fair Building Attended With Dramatic Features—Some Startling Figures.

By W. C. McCarty.

The final act that marked the completion of the mammoth Palace of Agriculture at the World's Fair, though unaccompanied by ceremony or demonstration, was as spectacular as the launching of a war ship and as impressive as the unveiling of a noted statue.

On the top of a high hill, almost in the center of the Louisiana Purchase Exposition grounds, an army of men had been working all summer. An enormous structure had been reared, but if it possessed beauty or symmetry it was effectually concealed behind a network of weather stained timbers that the workmen called the "false work."

It was when this "false work" was removed, simultaneously on all sides, that the building instantly assumed majestic proportions. Architectural beauties that had been concealed sprung into view as if by magic, and in the twinkling of an eye there appeared to rise before one a magnificent palace, of unrivaled proportions, with graceful facades, vaulted entrances, large expanses of windows, and walls and columns that appeared as if carved from flawless ivory.

Workmen had been sent throughout the "false work" that had served its purpose. With saw in hand, boards and timbers that held the scaffolding together were cut, and ropes were attached to the topmost timbers. Then the men who paved the way for the demolition of the false work sought places of safety on the ground near by. The superintendent under whose orders the building had grown, gave a loud blast on a shrill whistle and the men on the ground gave a sharp pull on their ropes. There was a creaking and a groaning of parting timbers. Then a wavering of scaffolding and a great crash as a tangle of scantlings and boards nearly a mile long and seventy-five feet high fell at the base of the great building.

The usual description of this Palace of Agriculture fails to convey an adequate idea of its magnitude. The fact that it is 1,660 feet long and 540 feet wide, covers 23 acres, cost $529,000 and is the largest exhibit building ever constructed to contain a single department, has been told. When one is informed that over 10,000,000 feet of lumber were used in the construction of the building he may yet have an indistinct conception of its magnitude. The amount grows on one when he is told that 600 cars were fully loaded with this lumber. Thirty cars, thus loaded, makes a heavy train, so it will be seen that 20 full trains were required to transport the lumber for this one building to the World's Fair ground.

Vast forests were denuded that this building might rise. In the Southern pineries one acre of forest will on an average yield 6,000 feet of lumber. A little calculating will show that 1,666 acres, or nearly two and one-half square miles were required to furnish this lumber.

As the Palace of Agriculture represents only one of the many exhibit palaces of the World's Fair, or about one-twentieth of the total building construction it will be seen that 33,320 acres, or over 50 square miles of forest were cut for the erection of the World's Fair buildings.

The nails that were used in joining the timbers for this one building, when one pauses to think of them, speak startling facts. Five cars were required to haul the nails. In each car were 450 kegs. In each keg were 100 pounds. The five cars, or 2,250 kegs of nails, weighed 225,000 pounds, or one hundred and twelve and a half tons. The 10-penny nail was the average size used. It requires a strip of steel wire four inches long to make one nail. One hundred and six 10-penny nails weigh one pound, and in the 225,000 pounds used there were 23,850,000 nails. The total length of the wire from which these nails were made was 94,400,000 inches. Reduced, these figures read 7,950,000 feet, or 1,506 miles. Then if the wire were uncut and strung in the form of a cable it would more than reach from Kansas City to New York.

Eighteen cars of sand were consumed in the plastering of the building. There are 12,000 yards of plaster on the interior and 52,000 yards on the exterior. Of laths used on the inside there were 180,000. There were 18,000 casts of staff eight feet long, and 18,000 pounds of fibre were used in making the staff.

Figures on the painting reveal something of the enormity of the structure. On the inside alone eight cars of sanito were sprayed on the walls and timbers. There were 70 barrels to the car, and each barrel contained 450 pounds of paint. With the aid of his pencil a ready mathematician would soon discover that 252,000 pounds of paint were required on the interior alone. And the exterior consumed an equally large amount.

The roofing of the Palace of Agriculture gives one with a penchant for freakish figures a rare opportunity. There are 1,062,400 square feet in the roof. The roofing paper, which was first put on, weighs 50 pounds to a square. A square is 10 feet square or 100 square feet. Thus the paper alone weighs 500,000 pounds. The paper is covered with pitch, 60 pounds to the square. Here is another weight of 600,000 pounds added. Then comes the gravel. One yard of gravel, weighing 2,700 pounds, will cover eight squares of roofing. There were 1,250 yards of gravel used on the roof, and this weighed 3,375,000 pounds. The combined weight of the paper, pitch, and gravel is 4,475,000 pounds. Should snow fall on the roof

to a depth of one foot another weight of 5,182,000 pounds would be added and the pillars would have to bear a total weight of 9,657,000 pounds.

The bolts and rods used in joining the heavy timbers weighed 529,000 pounds.

There are 9,840 feet of 8-inch water pipe under the building to be used only in case of fire. Besides this are service pipes and gas pipes that will make the iron pipes in the building reach four.

The hill on which the building was erected is not level, though it appears so. The north end of the building is 20 feet lower than the south end. But so great is the length of the structure that it appears perfectly level.

One hundred and forty-five thousand six hundred and forty-nine panes of translucent glass, each 18x23 inches were placed in the sash in the Palace of Agriculture. It required 10 tons of putty to do this. Were all of the glass made into one piece it would cover a surface of 185,439 square feet, or over four acres.

In erecting the building there were 796 posts, 60 to 67 feet tall, and made by joining and bolting four 10x12 timbers. There were 80 trusses 106 feet long, each weighing 12 tons. There were 536 smaller trusses that weighed seven tons each.

Caldwell and Drake, the contractors who built the Palace of Agriculture, with a force of 750 men completed the frame work of the great structure in 46 working days. Mr. Caldwell says that if the occasion had demanded faster work he could have done it in 30 days.

WOMEN AS ARCHITECTS.

Many calls and letters from girls who wish to study architecture have been received by me, and its growing popularity as an occupation for women is a recognized fact. A few suggestions and a little advice on the subject from one who has "been through the mill," so to speak, may be of help to others who are contemplating such work, writes Josephine Wright Chapman in Success.

In the first place, we will consider the qualities which are necessary for success in architecture. The most essential of these is artistic ability, but, in addition to this, one must have a thorough knowledge of construction, business ability and a certain amount of physical endurance. The average girl who desires to enter the profession thinks only of the artistic side of the work, and, as a rule, knows nothing of construction and has little business ability or physical strength. While the artistic ability is the most essential, it can easily be seen that one must also be mechanical, although he may acquire a knowledge of construction far more easily than he can cultivate an artistic temperament. Although girls are lacking in many of the qualifications necessary for success in the work, yet in many ways they are eminently fitted for it. They are naturally more studious and conscientious than men and will take more trouble over details. Then, too, they know far better than any man the needs of a home. For this reason, if for no other, I am convinced that a woman architect, as a rule, should confine herself to domestic architecture and interior decoration. She should, at present, be content with this. Domestic architecture is not so small a field as it might seem at first thought, for there are great possibilities for improvement there, and it remains for thoughtful, painstaking women to study the problem.

As to the training which is necessary for a woman architect, if it is possible, she should obtain a college education, for this is the best foundation for any profession, and the mental training thus received is of inestimable value. After leaving college she should enter one of the best of the schools of architecture and designing under the advice of some good architect or professor of architecture, if she should be so fortunate as to find such a one who is willing to help her. If she cannot do this, let her ask a good, practical draughtsman who has been through the schools to lay out a course of study for her to follow. Under no consideration should she attempt to study architecture through correspondence schools. While these institutions may be of the greatest value to students of other professions, it is time and money wasted for a student of architecture to attempt to learn her profession by "absent treatment." She should read the histories of architecture. The public libraries all over the country have collections of photographs and drawings of the best architecture in the world, and, if one cannot see the originals, these are next best for students. She should also make free-hand sketches, beginning at first with merely the outline of such objects as Greek vases, then art-museum casts, and, finally, buildings. In sketching, however, she must select only those objects which are considered best in design.—Exchange.

LANDSCAPE ARCHITECTURE.

Landscape gardening—architecture, as it is now called—has taken great steps forward in America during the past few years. In the past suburban palaces on grounds barely large enough for porters' lodges had been the despair of landscape gardeners, but men of wealth are now giving up the compromise between a town and country residence and are copying the great country estates of the Old World. As much skill and money are often put into nature's setting as into the residence itself.

Landscape architects borrow freely the art and grace of Italy's gardens, the fountains of the French Renaissance and the pools and water gardens of the Spanish Moors.

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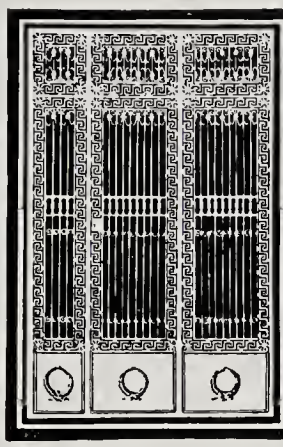

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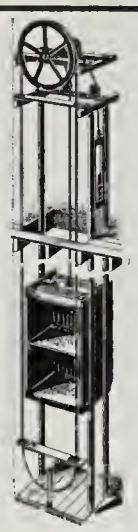

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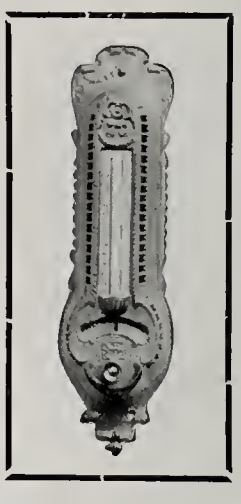

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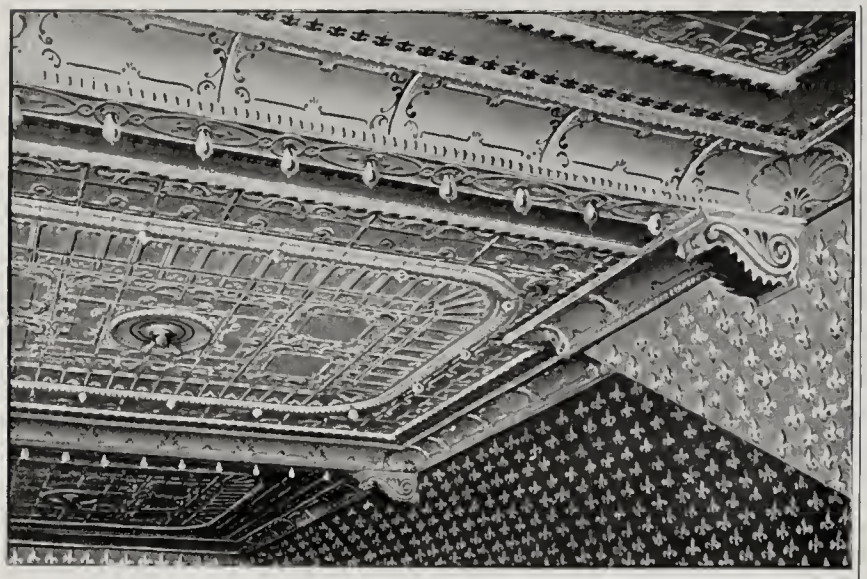

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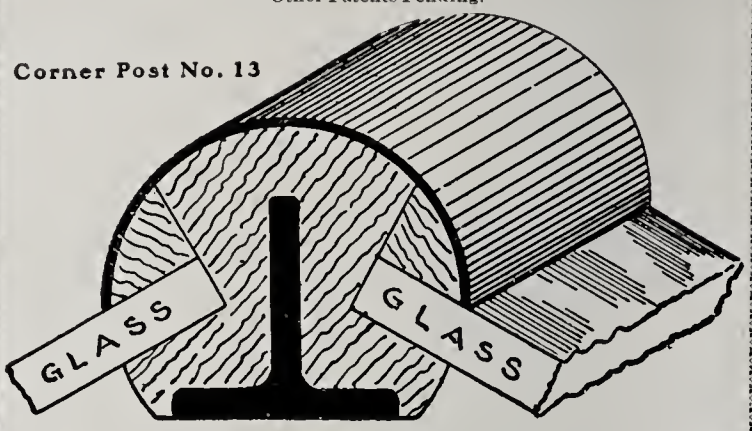

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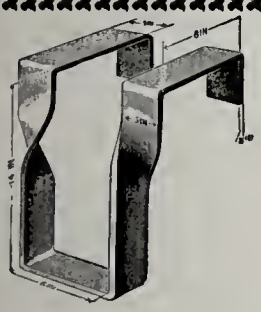

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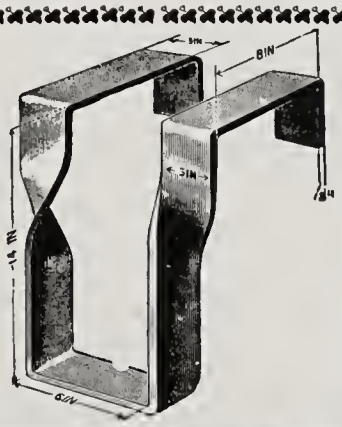

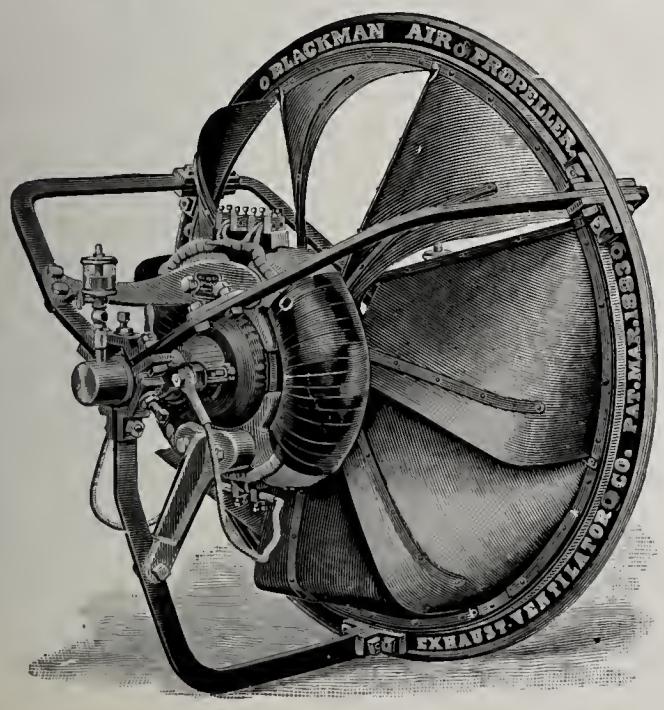

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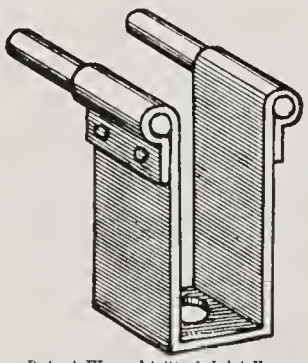
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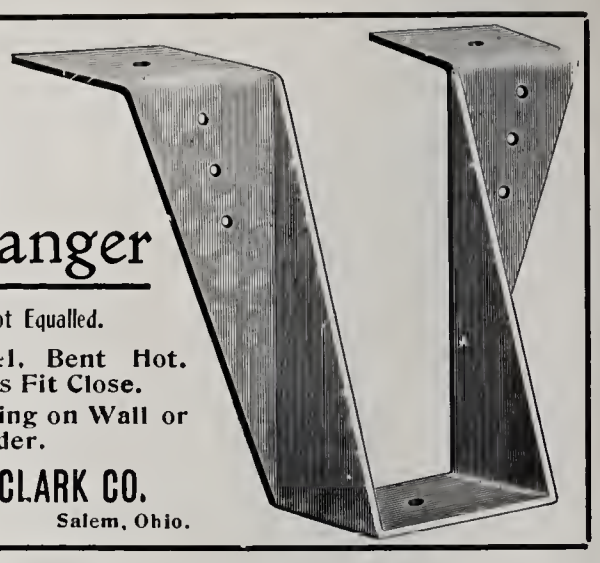

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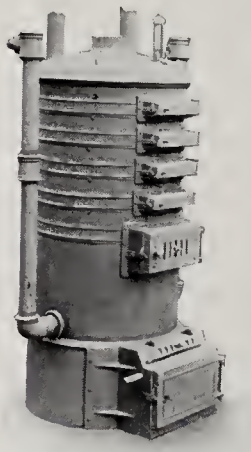
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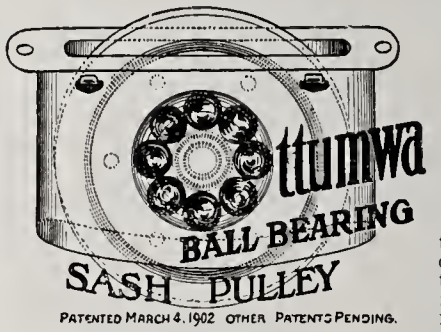

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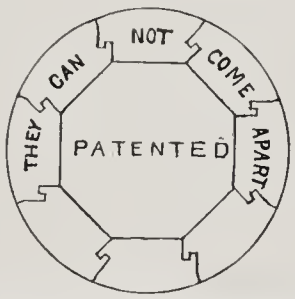

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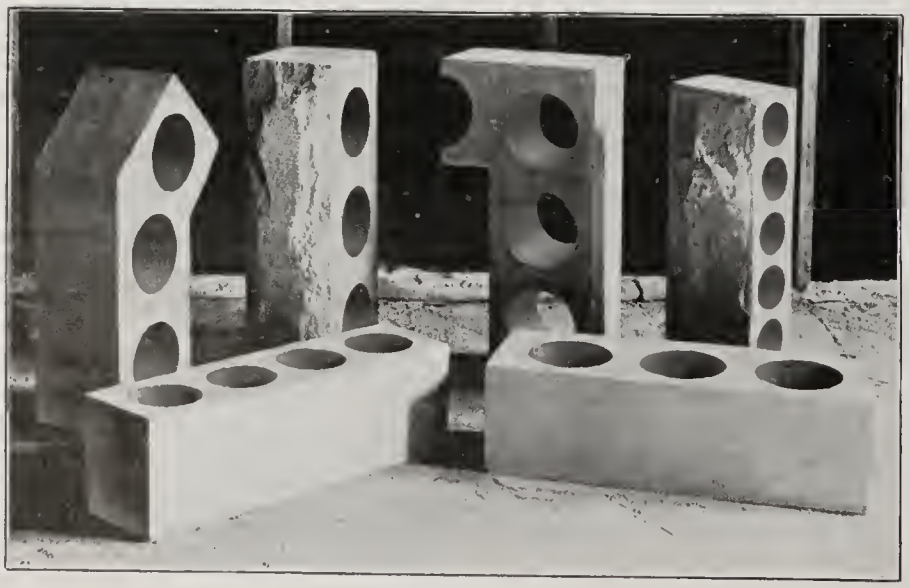

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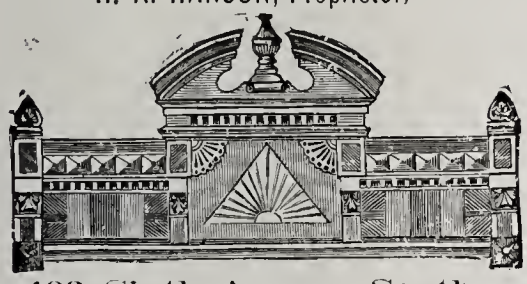

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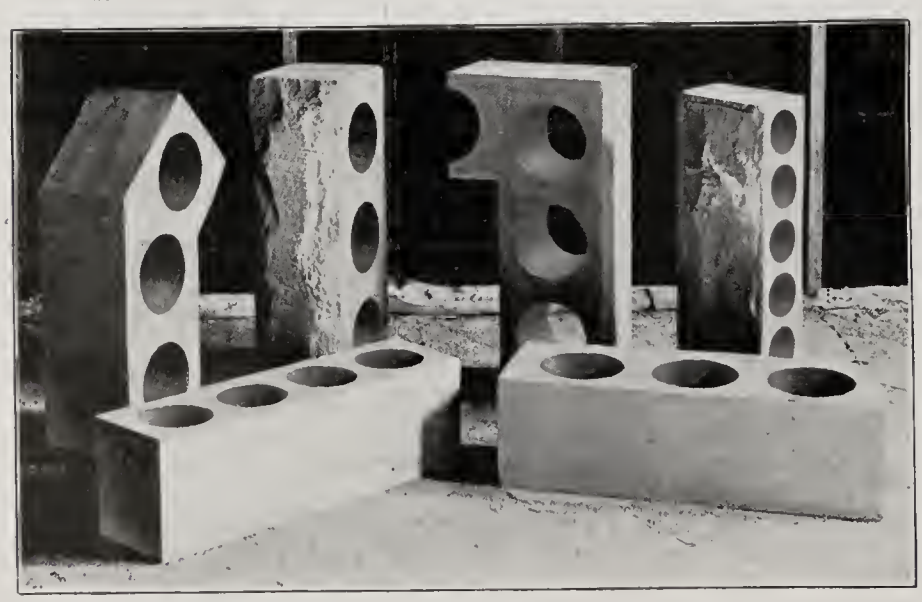

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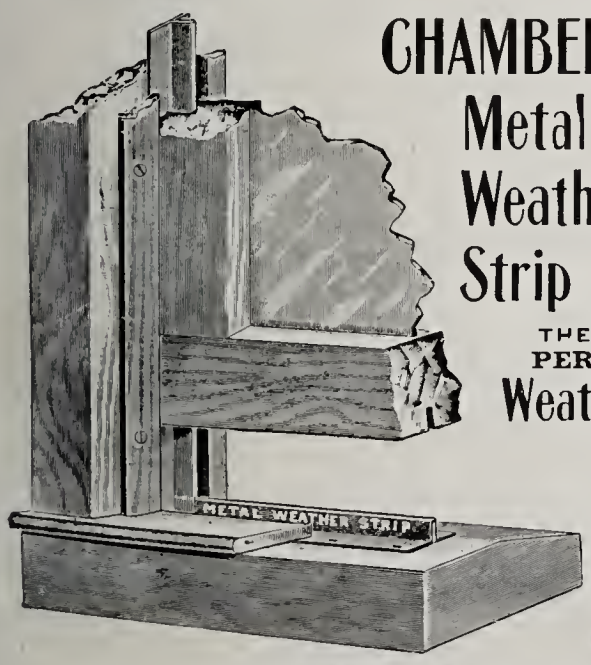

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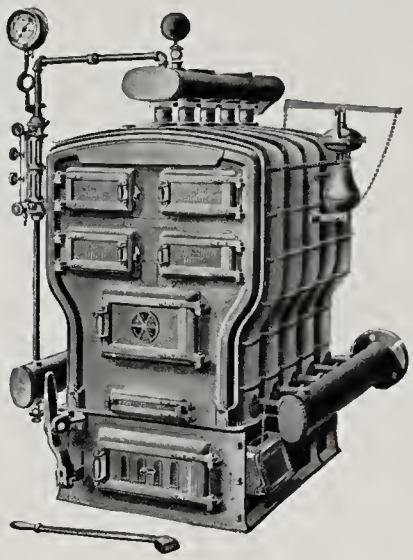

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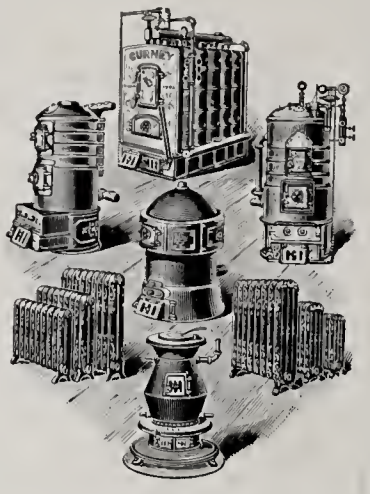

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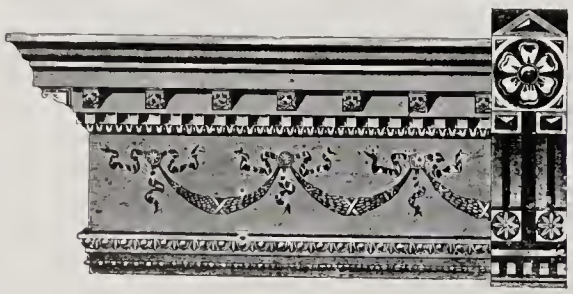

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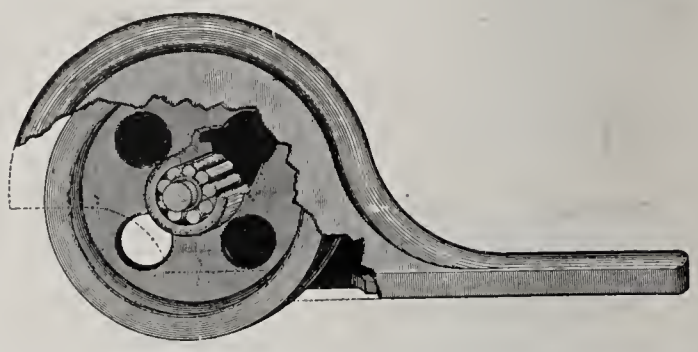

FIG. 1.—SECTIONAL VIEW OF GRANT OVERHEAD PULLEY, WITH ROLLER BEARINGS.

ball bearings, roller bearings and the plain pinion—which are sold at different prices, according to the requirements of the specifications. The housing is made in one piece of iron, which will resist any possible load without fracture. The housing connects with the soffit, so that mortar will not clog the wheels. The sash chain or cord is easily inserted with a mouse, which is furnished with each order. The manufacturers say that with this pulley even, for the heaviest plate glass windows, iron weights may be used instead of lead, thus greatly reducing cost. The pulleys can be cut in the frames with the regular pulley machine. Some of the advantages of using this pulley are referred to by the makers as follows: They can be used in segment head window frames. They hang the weight in the center of the boxes in circle window frames. They are concealed from view when the window is closed, as illustrated in Fig. 2. Only lacquered face pulleys are necessary, as they are concealed from view when in use. They can be easily re-

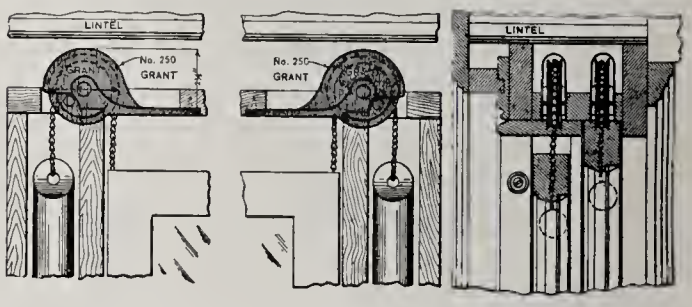

FIG. 2.—SINGLE FRAME AND SECTION OF PULLEY.

moved, if required, after the trim is placed. They require 8 inches less of pocket room than the side pulleys, and thus an iron weight may be used in many places instead of lead. This, it is said, will save from 100 to 200 pounds of lead to each sash, with a corresponding reduction in the cost of material. They are made in four sizes, with pulleys 2, 2¼, 2½ and 3 inches in diameter, with lacquered, bronzed, Bower-Barff and bronze metal faces. Fig. 2 shows a single frame and section, showing pulleys in place concealed from view. Fig. 3 illustrates a twin

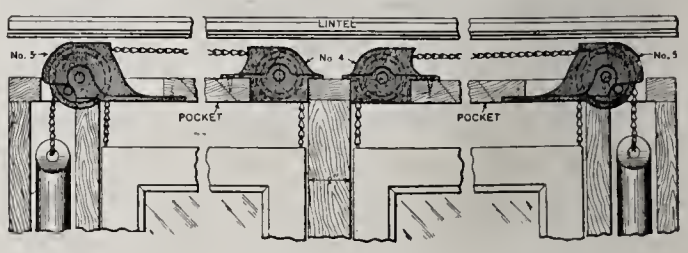

FIG. 3.—TWIN WINDOW, WITHOUT WEIGHTS IN MULLION.

window without weights in the mullion. These pulleys can also be used in triplet and quadruplet window frames. Used as in Fig. 3 only 2½ inches of head room is required, and even the triplet and quadruplet frames require but 3 inches head room. Another form of this pulley is made embodying the same principles but adapted for metal fireproof windows.

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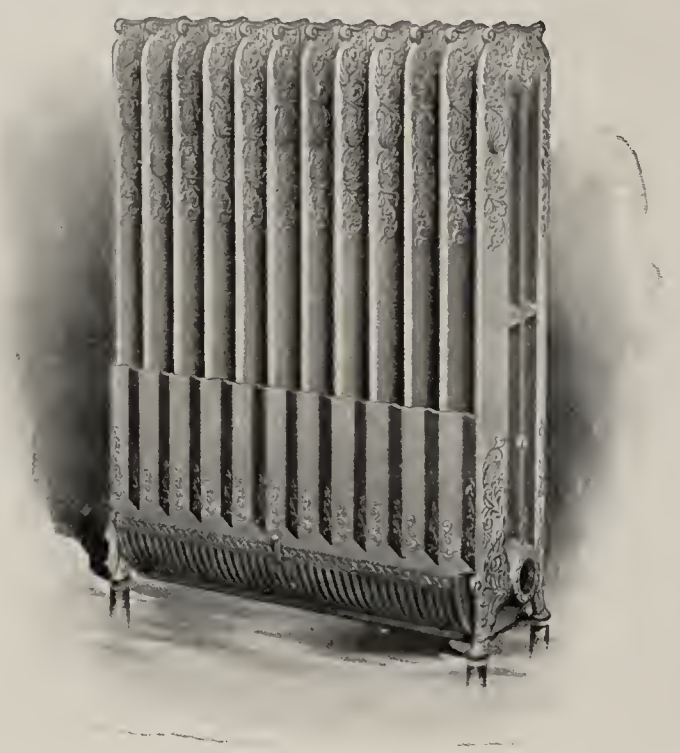

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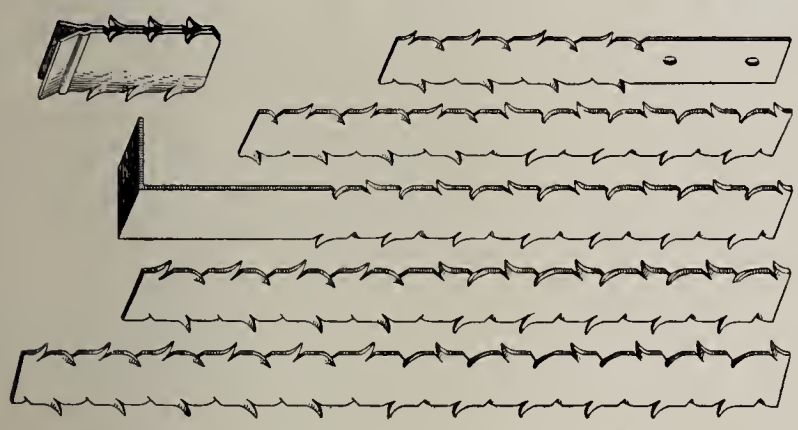

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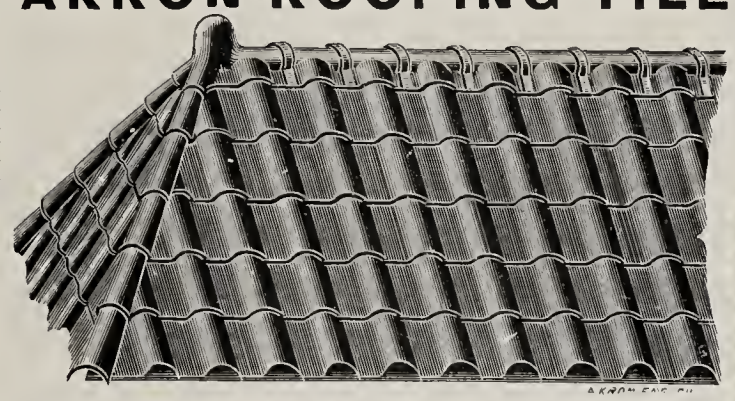

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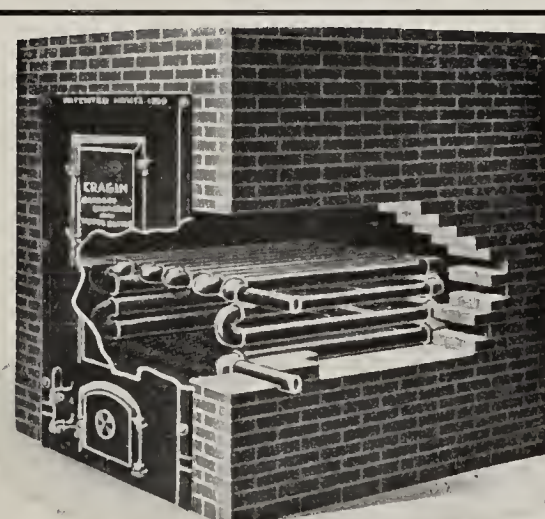

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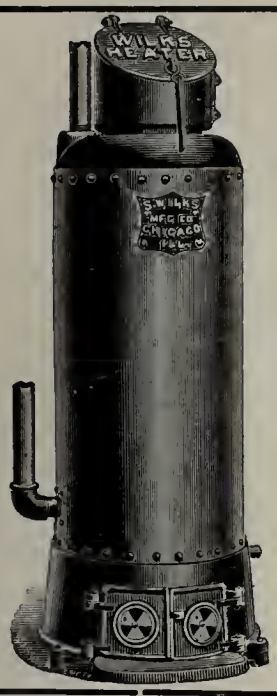

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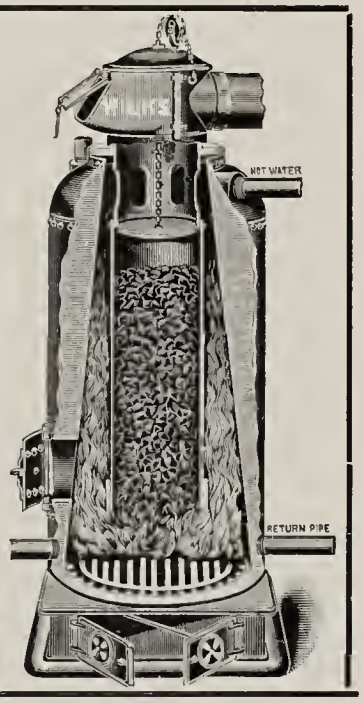

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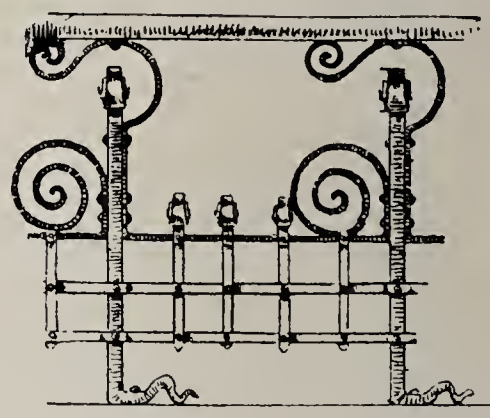

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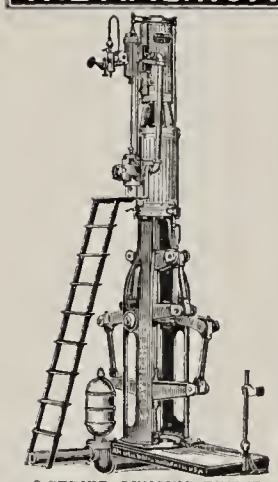

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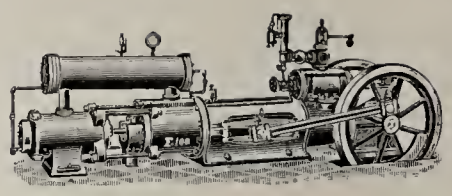

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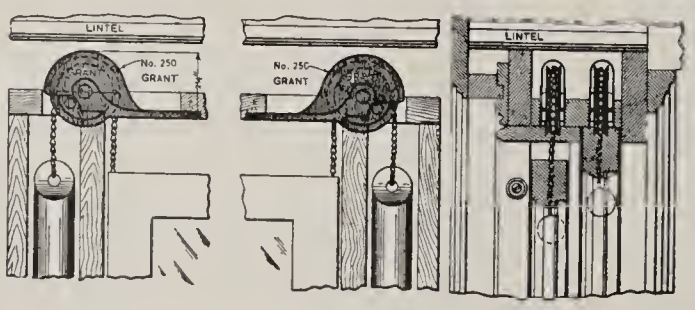

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THE Western Architect

AN ILLUSTRATED MONTHLY JOURNAL
DEVOTED TO ARCHITECTURE AND ALLIED ARTS

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MR. JOSEPH PENNELL goes on record in a magazine article with an opinion that Wihtsler was "the greatest etcher and most accomplished lithographer that ever lived," illustrating by reproductions of selections from the works of Whistler and Rembrandt intended to show how these masters treated similar subjects. In Mr. Pennell's estimation, the plates do show the "absolute triumph" of Whistler's treatment.

BUILDING codes will be held in greater esteem for a period dating from the Iroquois theater tragedy. There will be for a time careful inspection of appliances, and fire drills also. Then all will become an old story and this sort of history will repeat itself.

By-the-way, it seems not to have occurred to any one before that an asbestos, or other fire proof curtain that works well under ordinary circumstances, will be pretty sure to "stick" when the powerful draughts set up by a real fire rush through the proscenium opening—draughts which are supposed to be emphasized and diverted so as to insure safety to audiences.

THE great theater horror brings to light two kinds of executive—one closes audience rooms until made over to meet legal requirements, the other lets the playing proceed with the repairing. The first kind is getting most of the abuse—and quicker and surer action.

As a rule, in disasters of the magnitude of the Iroquois theater fire, it is impossible to locate the blame so definitely as to remove "reasonable doubt." The evidence points strongly to careless and faulty electric installation, the same to which the Iowa capitol fire is attributed.

It will be noticed that nearly all such disasters come from the work done after the building is completed and not from defects in wiring of the building proper.

This carelessness with wiring for the changing needs of occupants of buildings, is far more apt to escape the vigilance of building inspectors and insurance interests than is the work done at the time of construction. To reduce these risks as far as may be, buildings need to be inspected at short periods after occupancy with even more skill and care than at first. It is needless to say that the ordinary building inspector's force could do this—they have more than enough to occupy their time in looking after construction proper.

REPORT No. IX. from the Insurance Engineering Experiment Station refers to the protection of steel from corrosion, and will be found quite comforting to people interested in building, if we except painters. Earlier reports establish pretty clearly the great preservative effect of Portland cement upon clean surfaces of steel, but this deals with its effect upon steel in all stages of corrosion. Pieces of scrap were obtained from all sorts of places, and were only cleaned by jarring off the loose scales and brushing off loose particles. Some were encased in crushed rock and others in cinder concrete, while still others were unprotected. The noticeable thing about the trials is that when the covering of concrete was perfect, corrosion ceased. The report indicates the sufficiency of this concrete for protecting steel in all the situations common to building, if we except the electrolysis set up in moist places by fugitive currents. Paints have not thus far received very thorough testing, nor have they succeeded in impressing the experimenters as having more than quite temporary preserving power.

Mr. Atkinson's report of the work of the station for the year comes unfortunately too late for publication in this issue but will appear in our next.

GLIMPSES from the threshold of the new year indicate less turbulent times in the building world than for some time past. This does not of necessity mean less accomplishment—it may mean more. The past year and a half have witnessed enough disturbing causes to form a list, and most of them have stood in the way of efficient production. It is the custom to place what are commonly termed labor troubles at the head of this list, and this department will not attempt a re-arrangement—it has already gone on record with an estimate that during the height of the period of marking up prices, which period covered much change from the ten hour to the eight hour day, the effectiveness of the day's work fell off one-third, more often than less. The exceptions were mainly where the loss was offset by improved methods; but improved methods are quite apt to come in slack times rather than during a rush of orders. Apart from labor troubles, people who have wanted things done have encountered a sort of top-heaviness at every turn.

Old houses who had an established reputation for prompt service were found to be "expanding" or "merging," perhaps, at any rate the old order was succeeded by a sort of hopeless circumlocution—accomplishment by indifference and irresponsibility. Cases might be cited where these changes called for pity as well as indignation —where houses with reputations of the best seemed powerless to prevent insufferable delay and the filling of orders with inferior goods. Prominent in the list, perhaps it should be at the head, is the fact that the period has been prolific in attempts at monopoly in several lines of production, which tendency, if appreciably successful, is enough of itself to derange the course of healthful business. When, for instance, a mammoth concern becomes so well intrenched as to undertake to make its dividends equal its disbursements for salaries and wages, its customers are in luck if they can transfer their trade to others.

Combinations of workmen have generally, during this period, been monopolistic in their nature, their prime objects being a raising of prices and reduction of supply. Unfortunately, workmens' organizations have not impressed the public as tending to improve the character of workmanship. Unionism might stand far better with the public today, had it coupled with its demands for higher wages and shorter hours, a higher standard of skill and promotion of technical schools.

This inflated period has, however, witnessed some combinations not monopolistic and reactionary in character. The Association of Portland Cement Manufacturers, representing some 90 per cent of the output of the country, have been at work along the lines of real progress. Realizing that the future of the Portland cement market depends upon the record it makes in use, they have set about into one of uniformity—establishing a uniform and reasonable standard. Seeing the great market that has been bringing the present chaotic systems of tests or no tests worked up by combining concrete and steel threatened by the enterprise of all manner of quack designers that are rushing into this field—the remarkable mixtures and combinations of these quacks have already produced great scandal by a long list of failures—they have set themselves resolutely to head off this quackery, by enlisting the co-operation of the Iron and Steel Association, the American Society for Testing Materials, the American Society of Civil Engineers and the American Institute of Architects, with a view of formulating definite information and setting some safe bounds for these concrete steel mixtures. These societies, one of which has a financial interest in common with the cement workers, are responding in a way that gives promise of much definite information for one thing, but what bids fair to be of greater benefit to the public, will be the semi-official setting of proper limits for these combinations, after which nobody will have excuse for taking his chances with the quacks.

The question of cement tests has been taken up by committees of two of the above associations with which the American Railway Engineering and Maintenance of Way Association and the engineering departments of four large railway systems are co-operating.

PRESIDENT PRITCHETT of the Massachusetts Institute of Technology, who, it will be recalled, was the first American to have the distinction of a trip on the experimental fast German railroad, has upon returning home, given his impressions of how the Germans go about things scientific and industrial. Dr. Pritchett's equipment must have enabled him to get a much better insight into the methods employed there, than falls to the lot of most observers, for he readily accounts for modern German progress. Over there, experts or "engineers" of achievement have come to be regarded with the same respect and consideration that is accorded to men of distinction in other professions, and they have a way of attacking a problem in a body, receiving good support from the government and from private interests that are affected. For example, some years ago it occurred to a number of electrical experts that trains might be made to run much faster, so they proceeded to form a typical German organization, the "Studiengesellschaft fur Elektrische Schnittbahn," or "Student Association for the Study of High Speed Electrical Transportation." This association readily obtained the financial assistance of two principal German railroad corporations, and received from the government the use of 15 miles of track not far from Berlin. This was not a military road or experiment as has been so often reported. The association set out to accomplish 130 miles an hour, and having succeeded are likely, in Dr. Pritchett's opinion, to be satisfied with that speed. The day of his visit to the road was foggy, and the runs were not allowed to be made at more than 110 miles per hour, as "high speed was considered unsafe."

The German technical schools have been raised to a par with the universities, and the position of the industrial expert in German social life is such as to attract young men who, in England, would think there was nothing for them short of the army, the navy or the church. Dr. Prichett's account of the relation of the Kaiser to this great industrial movement, will be a surprise to

most Americans who have only had a chance to judge him from his political antics, domestic and international. He has usually impressed foreigners as a belated old testament person, sadly afflicted with what the school mistress called "an elevated self-consciousness." In reality he is greatly interested in German scientific and industrial advancement, bestowing his favors liberally upon the experts who make their mark, and the prominence given to technical education is largely by his favor.

Of the many comments brought out by the discussion in our December issue of the effect upon building interests of the present methods of inspecting cements by city authorities, few have failed to note the absurdity of the situation. One dealer, who is also a large contractor of paving and sidewalks, makes merry over a situation in which cities select the best cements on the market for use in sidewalks and pavement foundations, leaving rejected goods for the structural work of buildings.

Below we publish three of numerous letters received from architects showing a strong sentiment in favor of some action. Mr. Koch says that dealers who have offered cements that failed to stand tests have told him that they would sell the rejected stuff to others less particular. Mr Gilbert suggests a government inspection, and such a system might have its advantages for it could be done at the mills and would save the cost of shipping rejected goods away from the mills. It would also do a great deal for the reputation of manufacturers whether they valued their good names or not, for if they were not allowed to ship undesirable goods they couldn't help but be of good repute.

Government inspection at the mills might prove to be less costly, also, than city inspection, and would have the further advantage of benefiting all users, while inspection by cities, unless practiced by all, would have the effect of making cities with lax inspection or with no inspection, the dumping ground for rejected and poor cements.

But long before a sufficient sentiment can be worked up to get congress to act in such a matter, it will be possible to induce city councils to provide for adequate cement inspection within the limits of their jurisdiction, and dealers in cement cannot do better than to help in this way to put the business on a sounder basis. The attention of the building world is being turned toward many new uses for cements. Not only are concrete foundations and footings displacing stone, but the manufacture of hollow concrete blocks for superstructures is being undertaken here and there with a determination that indicates a future for the business. Cements are to be had for these that leave nothing to be desired in color, but let the public once lose confidence in the material and the industry will be short-lived. To get a notion of the advantage to a business that comes from public confidence, one has only to look at the enormous expansion of the candy trade in this country since the time that a larger association of makers of confectionery made a standing offer of a very desirable sum of money to anybody who would bring legal proof of the sale of any candies containing harmful ingredients. Of course this offer, to be effective, had to be backed by pure food laws. So also, local or general laws as to the character of cements will be needed as a preliminary to reforming present conditions.

New York, Jan. 4, 1904.

The Western Architect,
Minneapolis, Minn.

Dear Sirs:—

I strongly favor that rigid cement tests should be made by public authorities, either state or municipal, and if practicable, believe that tests should be made by U. S. Government authorities, so that they might be uniform all over the country.

A system of government inspection obtains in Germany, and as a result German cements have reached a high degree of development and are acceptable in any market.

I believe that cement tests should not only be made in small briquettes, but that they should from time to time be made in fairly large blocks of concrete and brick masonry, and I see no reason why they should not include tests for crushing strength as well as the usual tests of tensile strength.

My experience has been that cement is generally used wastefully, and economy in building operations would ensue if it were understood that the cement used could be relied upon. At the same time a larger market would be made for cement by careful tests thereof which would be authoritative.

Respectfully,
CASS GILBERT.

Milwaukee, Wis., Jan. 2, 1904.

The Western Architect,
Minneapolis, Minn.

Gentlemen:—

It is our opinion that all cements should be thoroughly tested by Public Officials, whether for use of public improvements or used by individuals.

We have had considerable experience with cements on large works. We have used some of the best cements manufactured in the country and even then by a close and careful inspection we were obliged to reject from 20 to 25 per cent of same.

The dealers from whom the cement was purchased did not care whether it was rejected or not, as they informed us that it would be taken to some job where the people were not so particular as we are.

This illustrates the general practice in this city. Those that do not make a careful inspection will get the rejected cement. What is needed, in our opinion, is that the various municipal authorities should enact ordinances and laws that all cements, whether for public or private use, must be thoroughly tested upon strict rules of test that ought to be formulated by expert engineers or architects.

We should be pleased to give this move our hearty support and will make an effort that our city enact the proper ordinances and laws for such testing.

Respectfully yours,
H. C. KOCH & CO.

Minneapolis, Minn., Jan. 8th, 1904.

The Western Architect,
City.

As to the desirability and need of a more thorough inspection and test of cements used in building construction, there can be but one opinion, and that is that it is both needful and desirable.

This department is not equipped with the necessary apparatus to make such tests and depends largely upon the general reports of the City's Inspector of the City Engineer's Department in regard to the results of tests of the different brands used by the city on municipal work. Although said inspector does, upon request, make tests of samples of cement for this department, yet you will readily see that, with the large amount of cement used in building construction and that amount constantly increasing, it is impossible for us to have all cements properly tested that go into the construction of the various buildings without having some competent man whose time can be devoted to that purpose. If your valuable magazine would use its influence by properly presenting this matter to your readers, I have no doubt but that it would result in the adoption, by the proper authorities, of the necessary measures to provide for the thorough testing of all cements used in building construction, and I would gladly do all in my power to bring about such an arrangement.

Yours truly,
JAS. G. HOUGHTON,
Inspector of Buildings.

PHOTOGRAPHING ARCHITECTURE.

In Three Parts—Part First

Whatever ones views of the photograph as a means of illustrating, it has, by reason of its cheapness and accuracy, earned a place that will not admit of its being ignored.

Sympathy for the engravers and draughtsmen whose callings it has ruined is all well enough, but one cannot afford to let it obscure the fact that the photograph shoulders itself in at some stage of nearly all modern illustration and must be reckoned with.

Skill in photography involves taking advantages of several circumstances more or less beyond the control of the operator, beside which there are chances for the display of good taste and considerable ingenuity at many stages of the work. In some of the operations results may be controlled and modified in ways that remind one of the ways of the etcher. The allurements of some of these manipulations have their share in making up the enthusiasm of the amateur.

*GUY'S TOWER, WARWICK CASTLE.

Photographing architecture has its own peculiarities, and one may become skilful at it without acquiring any great skill in other lines. So much is done nowadays to smooth the way of the novice that the time necessary to gain some proficiency in such a branch of the art is usually well repaid by the by-products even; such as the insight one gets into modern ways of illustrating, the studies one gets in lighting, etc.

Photography proves not only a most interesting pastime to many, but its services in making cheap and faithful records are such that the camera has become part of the office equipment of many architects. This is sometimes the case where others are employed to "do the rest."

Notes on photography, to be of value to the novice, must unluckily be so elementary in their nature as to be wearisome to people of some experience, yet the kindergarten may not be ignored.

When one essays to photograph buildings, perhaps the first question that he will have to answer is, "What sized picture will satisfy me?" This question always involves the other question of expense, and when one is to travel, that of portability. A question of simplicity of the camera is also involved in this question of size, for the reason that lenses making pictures of 5 inches diameter or less may be operated without focusing for ordinary purposes, thus lessening by one item the things to be taken into account in making exposures.

*GROUP OF HOUSES ON DUKE OF WESTMINSTER'S ESTATE NEAR CHESTER.

The little pictures shown with this are from views secured by a lady on a trip through England. A film camera of the fixed focus kind was used, the lady was quite without previous experience and although her instinct for the pictorial will hardy be questioned, it may be doubted if she would have brought back so many good exposures had she used a more complicated camera.

However, were an architect to make the same trip with a camera he would wish to bring home larger views with him and might wish those views to give not only a good impression of the objects but to show all the detail possible within the scale of the picture.

Let us suppose his ambitions and his convenience to compromise on the 5x7 inch camera. This will require to be focused for exposures, and although the "finder" and the "snap-shot" will answer his purpose now and then, his really fine work will require the use of the tripod and the ground glass, "stopping down" (using smaller diaphragm) and prolonging his time accordingly. This will give fine definition over the entire negative and more "depth of focus," (better definition to near and distant objects,) both qualities arising from using only the rays passing through the middle of the lens.

*THATCHED COTTAGE—SAID TO BE OLDEST IN ENGLAND—BETWEEN WARWICK AND KENILWORTH.

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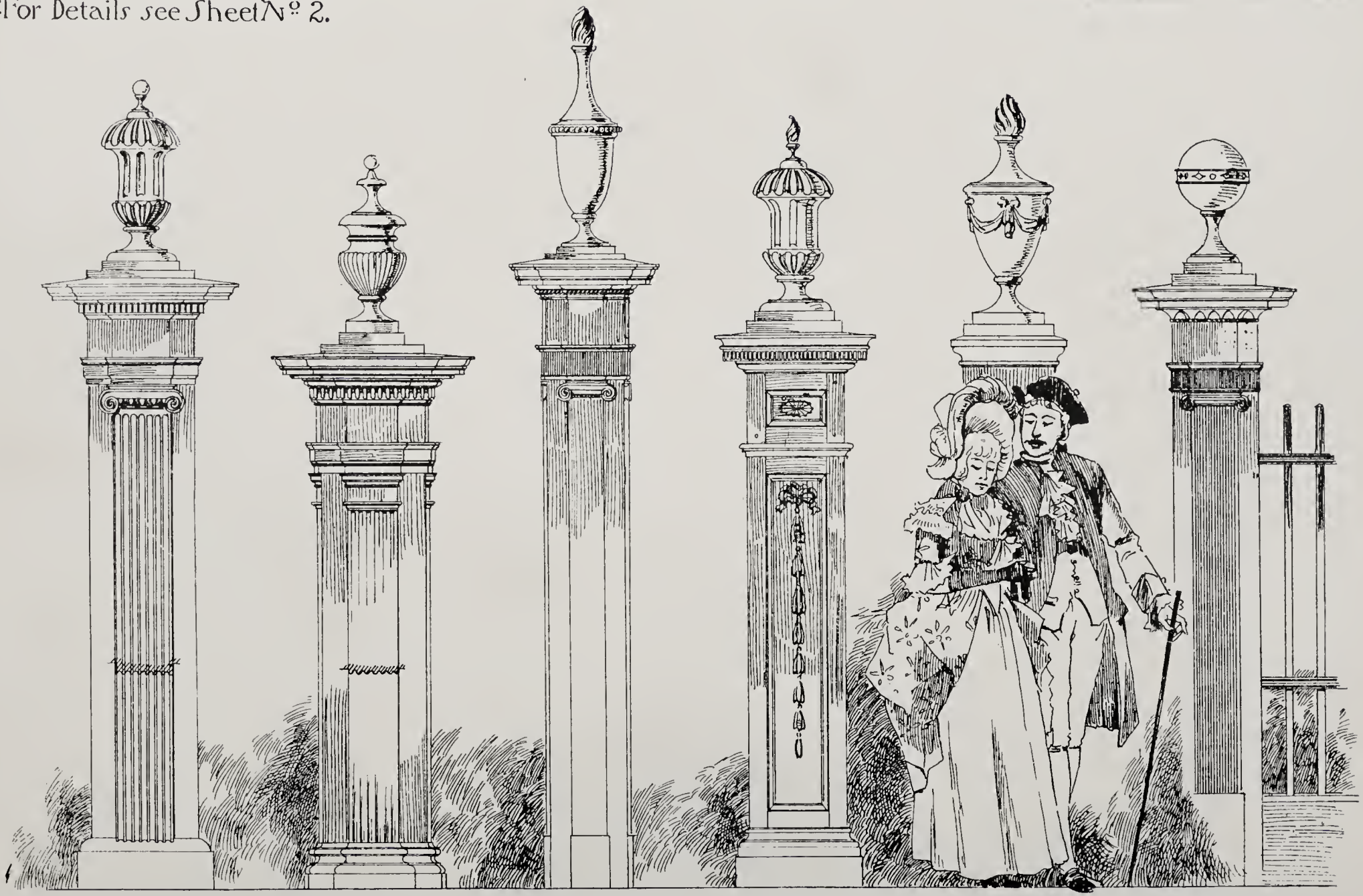
··FENCE·POSTS ·· SALEM··MASS··1·

:For Details see Sheet No. 2.

Scale 0 6 9 12 inches. 1 foot 2 feet



25. Chesnut St. 34. Chesnut St. Washington Sq Federal St. Federal St. Lafayette St.

Supposed to have been designed by Mc Intire, Archt. early in this Century.

Measured and drawn by Frank E. Wallis.

Supplement to
The Western Architect.

January, 1904.

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MANTEL IN OFFICE OF "ESSEX HOUSE"
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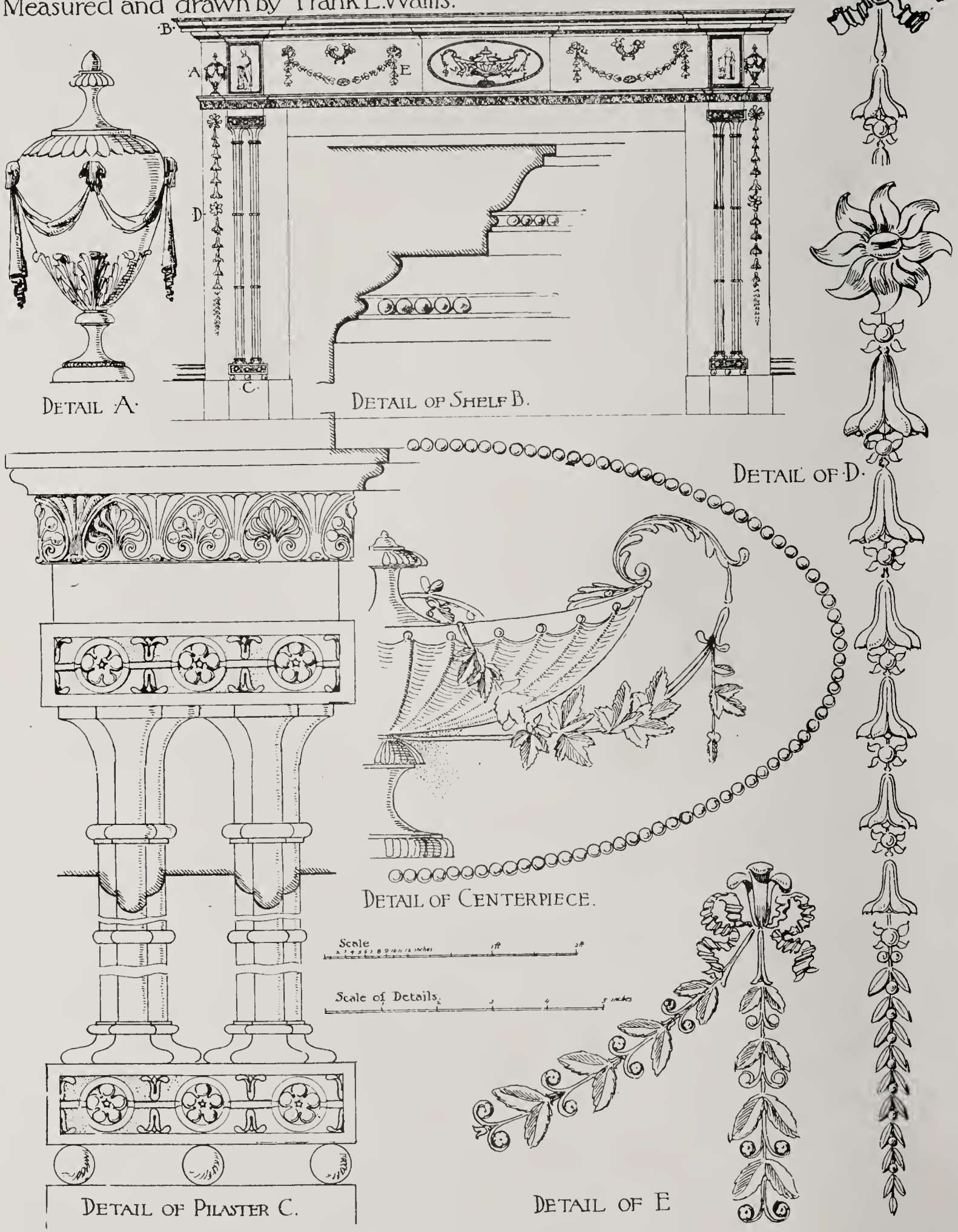

PERSPECTIVE SK
By Alb
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A. L. DORR, Arch

FOR RESIDENCE,
evering,
fe of
Minneapolis, Minn.

January, 1904.

OF THE

THE NORTHWESTERN MILLER BUILDING, MINNEAPOLIS, MINN.
Wm. Channing Whitney, Architect, Minneapolis.

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F. D. Orff, Architect, Minneapolis.

Compo Ceilings Capitals, etc., by the Decorators' Supply Co.

Compo Capitals and Ornaments by the Decorators' Supply Co.

DETAIL OF FRONT PORCH TO RESIDENCE OF HAROLD JOHNSON, MINNEAPOLIS, MINN.
F. D. Orff, Architect, Minneapolis.

THE
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RESIDENCE OF HAROLD JOHNSON, MINNEAPOLIS MINN.
F. D. Orff, Architect, Minneapolis.

Basement and first story built of
Hollow Concrete Blocks.

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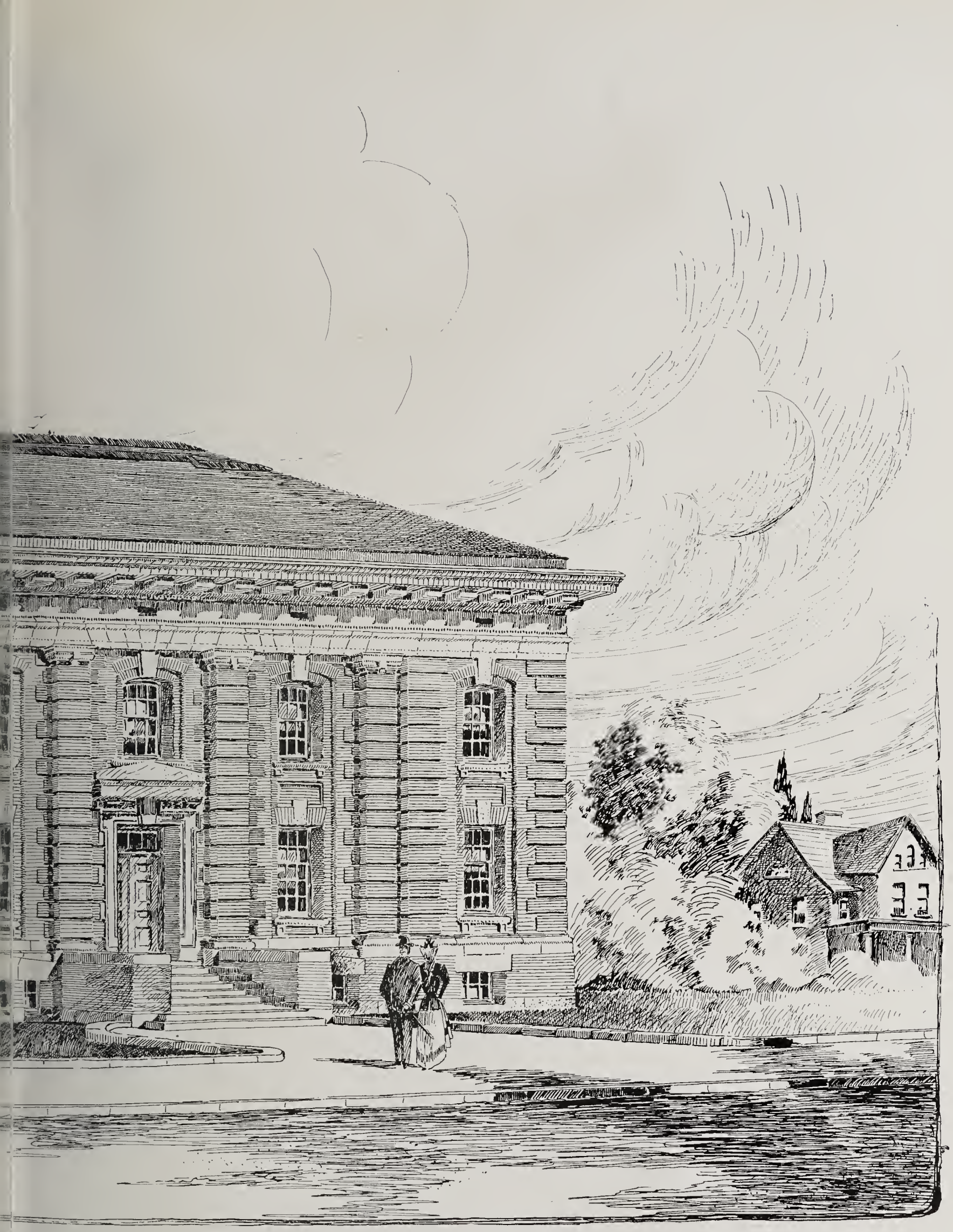
PERSPECTIVE OF NEW POST EXC
W. R.



GIAND GYMNASIUM, FORT SNELLING, MINN.
or Artist, St. Paul.

January, 1904.

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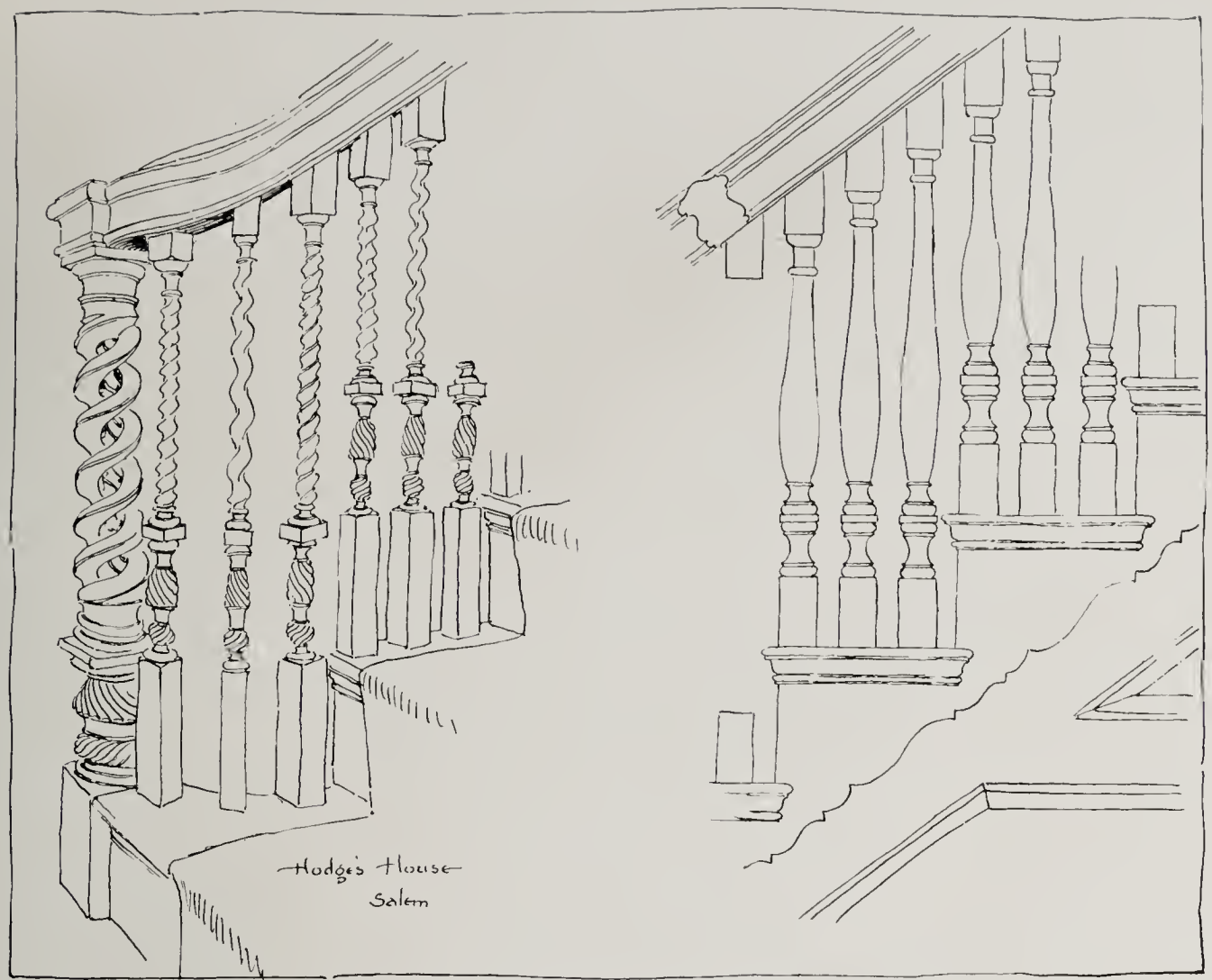
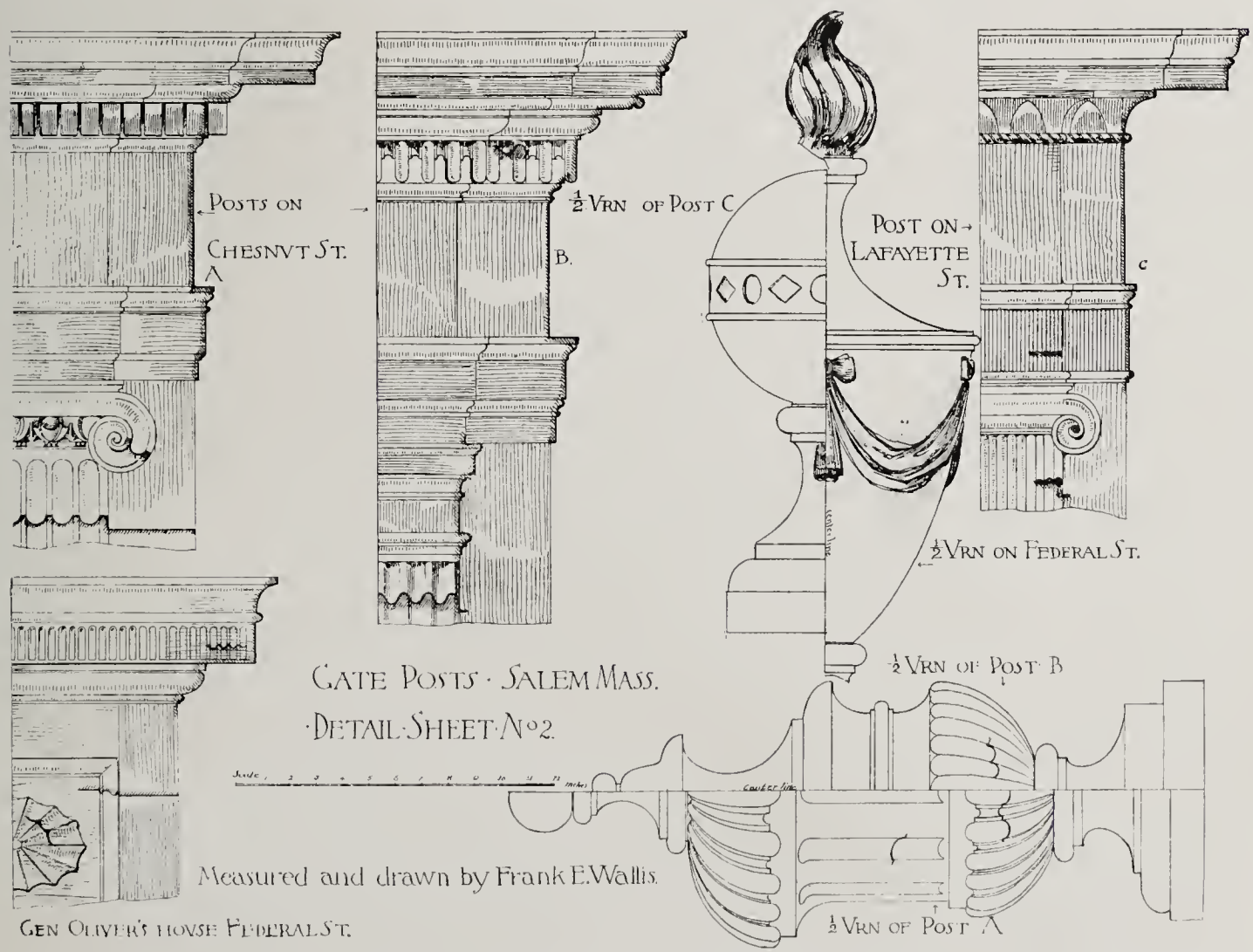


STAIR RAILING IN HODGE'S HOUSE, SALEM, MASS.



DETAILS IN OLD COLONIAL HOUSES, SALEM, MASS.

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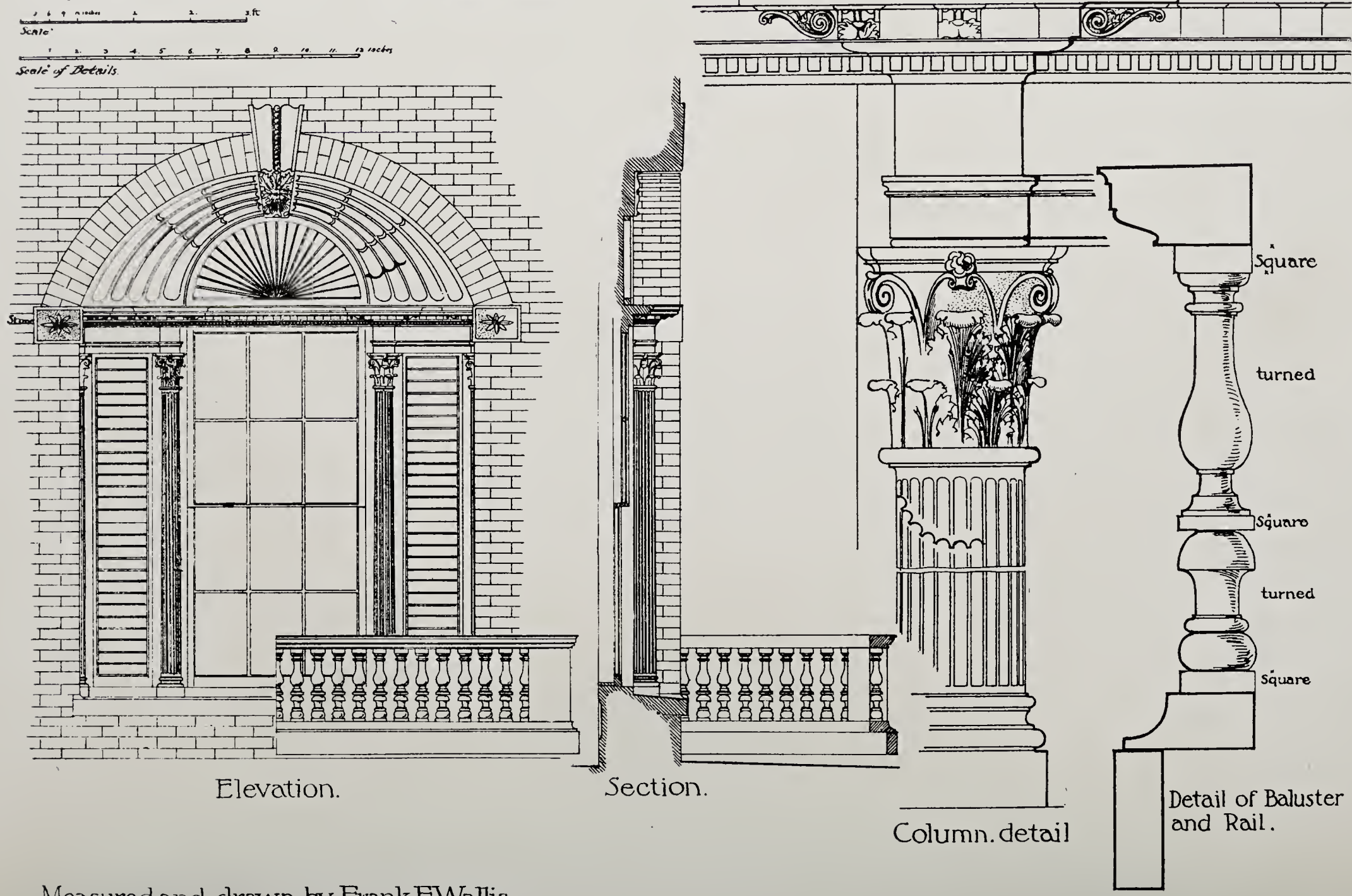
Front Window Philips House
Chesnut St., Salem Date about 1800.



Measured and drawn by Frank E. Wallis.

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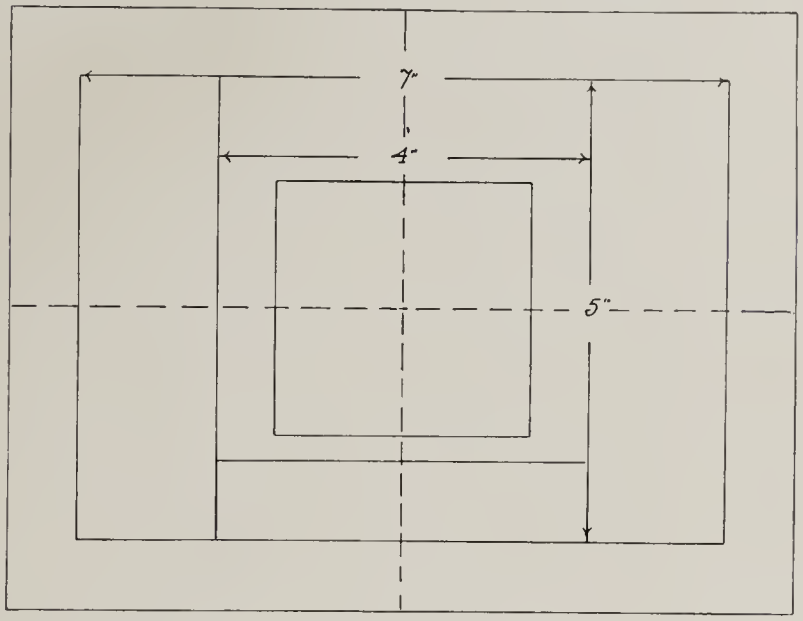
This camera should be a "reversible back" and may be a glass plate camera with an attachment for the use of the film cartridges. The weight of plates and holders will prohibit their use for long trips, but plates will be found much more convenient for use about home, while if considerable printing is to be done from the negatives the curling of the films often becomes very annoying. Plates are not only cheaper and more convenient when they can be used, but the percentage of loss through bad emulsions is much smaller.

Film makers claim their goods to be free from "halation"—a blurring of parts of pictures from too much local lighting during the exposure, and supposed to be due to reflection from the back side of the dryplate, but this claim is to be taken with a grain of salt. Special "non-halation" plates are made to overcome this, but they cost as much as films. They are often a necessity for interior views, and are superior for some other purposes where too brilliant lights are encountered.

*VIRGIN'S PORCH—ENTRANCE TO ST. MARY'S CH., HIGH ST., OXFORD.

Avoid too complex and expensive cameras. After filling the few simple requirements of a good camera, the maker likes to add a varied line of vanities and to charge roundly for them. All such lessen one's percentage of good pictures. The publishers of this journal have much of its photographing done under the direction of a member of its editorial staff, who selected for this work a camera made by the Century Camera Co. having a bellows extension of about twice the diagonal of the negative, folding up like the hand camera models. The "swing," about which so much fuss is made in most cameras, is here accomplished by simple adjustable braces which admit of fixing the bed of the camera at any desired angle from the plate. There is a large school who contend that the plate must "swing" on its axis, but there is nothing in the contention, and this simple strong device for setting the axis of the lens a little off the perpendicular to the plate can be operated just as quickly and successfully as with all the toggling put into other cameras for the purpose.



A few fine ink lines on the ground glass will be found to be of great help in photographing buildings. The 6½x8½ ground glass of the camera referred to is marked as above, the smaller square showing the limit of lantern slide pictures.

Lenses furnished with 4x5 or larger cameras are usually of the double symmetrical rectilinear type, not "wide angle" enough for all around architectural work. They are of many grades, few of them covering the plate sharply except with small diaphragms, and some not even then. This difficulty increases with the size of the lens. Some of these lenses are made "convertible," the singles being made of different focal lengths, so that from a given point one may get pictures of three different sizes,—the double lens would make the smallest picture and have great speed, while either of the single lenses composing it may be used in the back end of the barrel to make larger pictures at less speed and with some loss of rectilinear qualities. Thus a convertible lens may have the focal length of 9 inches when used as a double while the singles may focus at 16 inches and 20 inches respectively, and pictures of three sizes could be taken from one standpoint, objects in which would appear with relative measurements of 9, 16 and 20.

Some photographers supplement the ordinary lens with another of wider angle.

Where not necessary to use a lens of less focal length than the diagonal of the picture to be made, more pleasing results are obtained; but for much building work wider angles are needed. With 5x7 plates, on interior work, a lens focusing at 5½ inches on distant objects may be used without greatly distorting the extremes of the picture. Much wider angled lenses than this are made, but the effect of their work is displeasing.

The great work of some German experimenters resulting in the new optical glasses which have come to be known as the Jena glasses has revolutionized lens-making for photographic as well as other purposes. Mr. Caryl Coleman, told the writer that a collection of glasses from

ancient ruins, which he and his brother had been making could match nearly every modern kind except these new German optical glasses.

*CLOCK TOWER AND ENTRANCE TO COURTYARD OF WARWICK CASTLE.

Many photographic lenses have been made from these, widely varying in merit, which have come to be known generally as "anastigmatic" but makers are now applying trade names of their own to their special makes. Skilled makers now produce lenses from these that cover large plates sharply at full stop. They are moderately wide angled and some are made convertible, sometimes three or more lenses being used singly or in combination.

The lens selected for the use of this journal, after the most careful tests is made by Carl Zeiss, and has three singles, which may be so used as to give 6 focal lengths, with images respectively about as 14, 15, 17, 22, 27 and 32. The beautiful definition and illumination of this lens at large openings not only renders focusing much easier and more certain but saves time in exposing on slow interiors and in copying. It will make moderately wide angled pictures, and in its convertible features it appears to have no rival.

The speed of lenses as rated by makers is not always a true indication of their practical rapidity for photographing architecture. If a lens is rated at F:8, the largest practical light opening is supposed to be 1-8 the distance from diaphragm to dry-plate. But suppose that of 2 lenses claiming to work at F:8 on a plate of a given size, one will do good work at F:8 while the other requires to be stopped down to F:11.4, to do equally good work, the latter will be really but ½ as rapid as the former for the purpose intended, although it might be opened to F:8 and make as good a snap-shot on a smaller plate. The above expresses the difference between the better lenses of the new Jena glasses and the better rectilinear lenses.

Each single lens, whether made to use in a doublet or not, is composed of 2 or more glasses. In some lenses these are separated in the mounting. Such constructions multiply reflecting surfaces, and doubtless reduce speed. When these component lenses are mounted close together they are often cemented with balsam and discoloration of the balsam sometimes occurs, reducing the speed of the lens. Cleaning and remounting will restore.

Minute bubbles are sometimes found in the very finest of the Jena glasses and sometimes a lens may get small scratches on the surfaces from careless handling. These do not necessarily interfere with the definition of the lens, but reduce speed in proportion to the space occupied.

The practical speed of lenses may be easily tested, if worth while. In a large room without too much light place some sharply defined object like large letters on a white ground. Place the camera so that this will appear near the corner of the plate and with a known good lens expose, withdrawing the slide but half way. Change the drypiate end for end in the darkroom, substitute the other lens, focus and expose on the unexposed half of the plate. Care must be taken to focus sharply, to have the light openings relatively of the same size and to expose the same length of time. The light should be such that at least 10 seconds may be used in exposing. The plate may then be developed and both speed and definition judged by the results.

The many kinds of shutters placed in the lens and usually having a scale indicating the speeds of exposures, may work at the speeds indicated, but they so often do not that they should always be tried at slow speeds before the slide is drawn for exposing the plate. If one of these shutters is working about right on say 1 sec. and ¼ sec.—the operator can judge fairly well of this—the presumption is that it will not be very far out of the way on the shorter exposures indicated, but this is somewhat a matter of faith.

*"WARWICK VASE"—IN FERNERY AT WARWICK CASTLE.

The photographer of architectural subjects cannot, of course, control his light except for interiors, and for outside work he must take such lights as he can get or wait for better. The subjects are so distant also, that the tricks of focusing practised in some branches of the art have little value to him. The value of local development has been alluded to above.

ENTRANCES AND GATEWAYS.

BY FRANK H. NUTTER, LANDSCAPE ARCHITECT.

In the fresh enthusiasm which marked the early years of village and city improvement associations, walls, fences and all that might serve to mark a boundary line were entirely tabooed. As a protest against untidy and dilapidated fences which offended all rules of neatness, or against high walls and impenetrable hedges which selfishly shut out the public from scenes which it might and should enjoy, this action was a commendable one.

A good thing may, however, be overdone and now many home-builders are turning their thoughts toward securing that privacy which is necessary to the full enjoyment of their properties, and while the front lawns of the home grounds may still lie open to the passer-by, the garden side of the house, with its screened porches and sheltered lawns becomes the center of family life.

Another loss resulting from the banishment of all walls and fences is that of the opportunity of making a fitting and appropriate entrance to an otherwise attractive and complete home and grounds, and often the architect has sighed for permission to design a harmonious introduction to the building which stands beyond the gateway.

Where conditions preclude the owners of small properties and single lots from doing much, if anything, in this direction, a community of interests may enable them to concentrate their efforts and accomplish something well worth while.

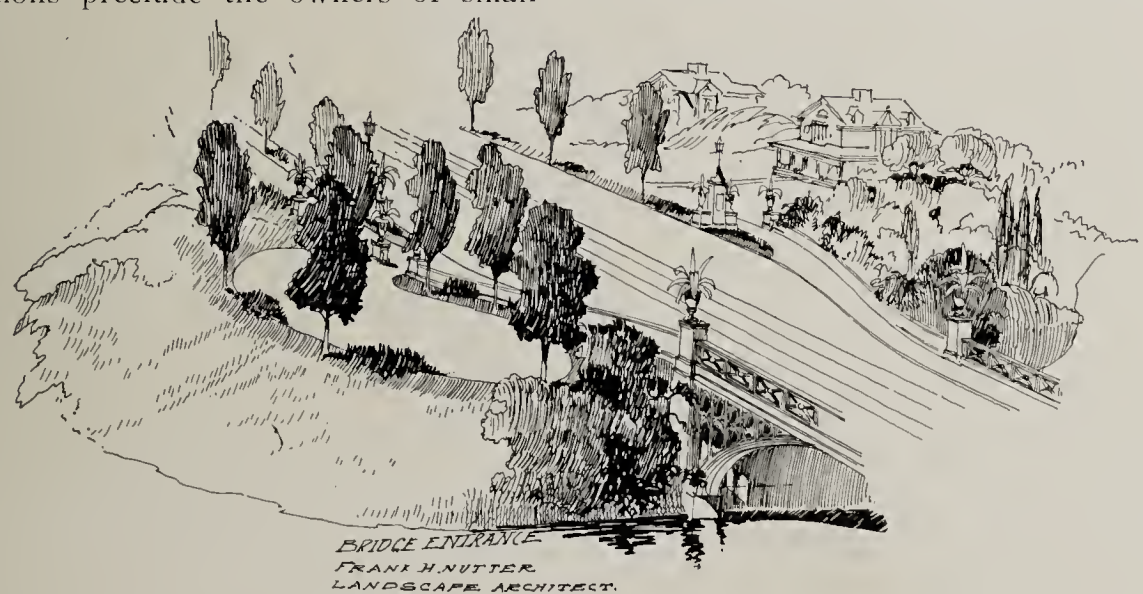
Beach Entrance, Lafayette Residence Park, Norfolk, Va.

In designing a residence park in the suburbs of a southern seaboard city the want was felt of something to emphasize the approaches to the property. The tract of about two hundred and twenty-five acres is mostly surrounded by the waters of the bay, and is nearly bisected by a curving boulevard, one hundred feet in width, with electric car lines in the center. These car lines approach from the city over an old bridge which must soon be replaced, and on leaving the park they divide on their way to the beach resorts beyond. For these two points the entrances shown in the accompanying drawings have been designed: at the bridge entrance to be in harmony with the new structure, while at the farther end of the boulevard the entrance will be flanked on either side by a wall and hedge reaching from water to water along a turnpike which forms the only dry land boundary of the property.

It may be said that through an oversight of the artist who drew the perspectives the posts at bridge abutments are carrying vases rather than the lanterns it is proposed to place upon them.

At the left of the bridge is a small park, and a terraced concourse, with seats which will overlook the tidal basin adjacent to the property.

This plan of a formal entrance to a parkway or street could easily be adapted to a block or more of a street in the strictly residence portion of a city, if the owners of the various properties would combine and work in harmony. By narrowing the roadway room could be secured for ornamental planting between the sidewalks and curb line; properly designed posts, with lanterns, and vases would mark the entrance at either end of the block; all fences and indication of division lines should be kept back of the houses, and uniformity in grading the front lawns, and in the planting and caring for the same would give to the whole the effect of a private park.



Bridge Entrance, Lafayette Residence Park, Norfolk, Va.

NEW ART HARDWARE.

BY F. L. LIVELY.

The scholarly architect who plans the best arrangement of the rooms, and gives a truly modern spirit in the style of the exterior and who makes the interior ornaments on the useful construction, will design the mantels, consols, sideboard, stairs, doors and window trim, including the hardware and drawer-pulls all to harmonize with variety and true relation. This harmony and relationship, by using the costly patterns made for the capital decoration in the hardware of all the interior work, produce unity, and unity is the high artistic quality of an architectural masterpiece. When the separate parts of the ornaments are highly pleasing because of their correct lines of beauty, their unity combines the many various parts into one harmonious whole. Ugly parts are repulsive, and can never produce pleasure. The ignorant egotist can perpetrate an abomination in design and be pleased with it, for it is the best he knows; he is not aware of its badness.

Bronze Hardware.
Designed Aug. 9, 1899.

In the last ten years the American manufacturers executed, and have gone to great expense to patriotically illustrate in the highest style of printing, new designs that are a credit to the century.

The new catalogues are eagerly grasped by all the bright students, and are the purest and safest art instructors. Many of them are almost inspiring; for they show the grand forward movement of the Americans. Why should we design or plagiarize in the style of Nero and Herod? Is the spirit of Herod to be used in the twentieth century design? Does it do justice to the scholarship, energy, and Christianity of the twentieth century? Shall our wives and children be holocausted in more of the geist of Herod designs? Who shall dare to use such a Philistine style and palm it off as frozen music crystallization, representative of the times and glorious progress of our beneficent government? Shame on the plagiarist faker. The times are worthy of the very best art. Let us rouse up to our whole duty. Indolence and carelessness must be thrown overboard, and skill, study, and an honest sense of brave duty take us up and inspire courage, zeal, and diligence.

The Parthenon is the greatest gem of all architecture because of the pure patriotism, optical corrections, and the vast amout of full-sized details that were made. It cost the architects twenty-five per cent to complete this masterpiece; it could not be done for less.

There is a big white marble club-house on Fifth Avenue, New York City, where an ornate frieze is carved all around the building, near the eyes' vision, and the full-sized design could be made on a sheet of letter paper, and even the design is not new. It is 2500 years old, hence it could not have cost the architect more than $5.00, while the owners must have paid the sculptor not less than $500. This makes the architect's commission on the face of the building evident to a hundred thousand experts, as one per cent.

New art costs ten times as much as fake patterns, A new composition in music is costly of time, talent, and cash, while old rag-time music can be bought for five cents per copy. Yet, the art of the Parthenon has brought back to Athens the biggest interest return of any honest investment patriotism ever made.

The art capital invested in Paris brings to that city more cash each decade than it all cost. Hence again we urge "New Art" "Zeit Geist" Art,—pure, patriotic, scholarly, and liberal, whether it be in hardware, decoration, painting, sculpturing, or construction.

GREAT MEN.

Generation after generation passes away.

Magazine architecture has become more and more prevalent, until now the cot of the humblest peasant reproduces the inside of at least one hundred homes, with open plumbing. But suddenly the people bethink themselves.

"Where are great men to be born?" they exclaim, apprehensively.

Some suggest that lowly habitations be provided, after ancient models; others maintain that great men are only a luxury, after all; but the majority, as is usual, know not what to do or think.—From Life.

HUMOR OF A STRIKE.

Two strikers were picketing the entrance of an alley during the strike at the factory of the Kellogg Switchboard and Supply Company in Chicago last May. A non-union man came out of the factory and started across the street. One of the strikers picked up a brick. As he looked at it an expression of disgust came over his face and he threw it down.

"Why didn't you throw it at that scab?" asked the other striker.

"Because it is a non-union-brick."—World's Work.

STATUE REPRESENTING INDIAN TERRITORY
For St. Louis Wor'd's Fair.

NEBRASKA.

The statue representing Nebraska to be placed in the Terrace of States at the St. Louis World's Fair. It is very simple in composition and was modeled by F. H. Packer.

LABOR AND CARE.

Tympanums for Machinery Building, for St. Louis World's Fair.

This piece of sculpture, 36 feet long, represents a man of athletic form holding a hammer and seated at rest, symbolizing the Labor, and a woman holding a compass and at rest, symbolizing the Care. In the center is the Coat of Arms of Missouri on a shield and surrounded by branches of oak leaves. This work is done by Fernando Miranda, sculptor.

OAK WARDROBE IN RESIDENCE OF LOUIS W. HILL,
Vice-President, Great Northern Railway, St. Paul, Minn.
Reproduced in German Barrack Style
By Wm. Yungbauer, St. Paul, Minn.

INSPECTED THEATERS ABROAD.

The Chicago Daily News has the following from its London correspondent in an interview with W. C. Zimmerman, the well-known Chicago architect, who has been making a tour through Europe inspecting the theaters of Vienna, Paris and London:

"My work in London," he said, "was interfered with by the appalling news from Chicago. I had seen only a few theaters here when I heard of the Iroquois fire. After that I had no heart to make further investigation. My observation leads me to think the Vienna theaters the safest in Europe. Many of them are quite detached from other buildings. They are splendidly furnished with exits and fire-fighting appliances. The theaters of Paris, except the best ones, are extremely dangerous. From what I saw in London I judge that fire in many theaters here would result in great loss of life. The passages are often so narrow that two people can scarcely pass. The managers naturally put a rosy face on the matter. They pretend that the Chicago fire has not reduced their bookings, but intelligent observers know better. Immense improvements are certain to be effected in London theaters in the immediate future. Every theater should be isolated from other structures. It should have exits all around and these should be used regularly. There should be no emergency exits whatever. The fireproof curtain should be used constantly in place of the ordinary drop curtain. All passages should be straight and wide and all scenery non-combustible. Lastly, professional fire-fighters should be properly posted throughout the performance. Europe recognizes that amateur firemen are useless in a crisis.

ACCEPTED COMPETITIVE DESIGN FOR JEWISH TEMPLE. (K. K. Bene Isreal.) CINCINNATI, OHIO.
Tietig & Lee, Architects, Cincinnati.

CORRESPONDENCE.

Minneapolis, Minn., Jan. 11, 1904.

Dear Editor:—

In reply to your request to say something on the Iroquois calamity, I will say that there must be a radical change in laws governing theater construction and operation before the public can be assured of safety.

The typical theater must be planned, constructed and operated perfectly. All three things must be done. From the imperfect information obtainable it would appear that none of these things were done in this unfortunate case. But safety requires that architect, builder and theater manager work in unison. The architect might make his plans and specifications ever so good; if the builder avoided his duty disaster might follow. If the architect and builder did their part and the manager neglected his, still all might be lost.

Here then is a chance for one, two, or all three of those concerned to make mistakes, neglect precautions or willfully disobey law, and cause such a disaster as the Iroquois fire.

Ignorantly or not, willfully or not, some of those concerned in theater planning and running are likely to omit some part of their duties and make trouble.

To obtain concert and certainty of action where several people are employed calls for an authority higher than any of them, whose function is to see that every thing is done that ought to be done, and that nothing important is omitted. At first sight we might look for such an official in the Inspector of Buildings. Were it not for the arduous nature of the work that this would entail, and the large force of assistants it would require, the building inspector might discharge the duty; but no city of which I have knowledge has expressed a willingness to pay for such labor.

In order to warrant against these awful calamities by fire it is necessary to have a careful inspection and supervision of the building from the inception of the plans to finish of the structure; and the same careful supervision is necessary during the term of its operation as a theater.

We know that the best planned theater would be faulty if ill constructed; the best built building, if poorly planned; and the best planned and constructed building, if poorly operated.

To evolve a perfect theater, it is a part of our business to find out what constitutes the best kind of planning, constructing and operation. This is a hard task. Few realize its magnitude. The Iroquois horror, though so terrible an agent, nevertheless will be an agent in solving this problem. The architectural world, the building world and the whole world will study details, draw conclusions, and devise means to prevent a recurrence of such a thing anywhere.

Until now custom too largely has dictated what a theater should be. It is well to follow custom in some things. It preserves continuity and gives a steadiness to undertakings; but in the field of mechanical invention and the scientific field generally, custom should have no place. What it suggests should have the very best reasons for being approved. Unfortunately custom has too great an influence in all we do, never so original as we think ourselves to be, and when even our best professional men attack a problem they accept much information as correct simply because custom lends weight to it.

The architectual professional is beginning to weigh things professional; is laying aside custom and is now adopting things on merit. Especially is this true in the line of construction. There has been good work done in the planning of theaters and there are many good ones throughout the country.

With what does the theater designer have to contend? Aside from scores of needful things now being enumerated in the public press something very much like a dilemma confronts him to start with. In the perfect theater the audience will be protected from fire and be given certain and equable heat and ventilation.

The dilemma is this: efficient protection of the audience from fire means interference with the ventilation. Proper ventilation is hard to be secured without liability to fire.

If the auditorium is to be protected from the entrance of deadly gases and flames it is needful among other things that the ceiling be made gas tight and fireproof; but if the ceiling is made tight, the foul air cannot escape. The upper balcony or gallery would be an unbearable hole —an unsalable proposition. It may be advanced that a ventilator could be placed in the ceiling to be closed in time of fire; but this is an uncertain devise not to be thought of in our perfect theater. Also it may be advanced that a ventilator may be placed in the auditorium ceiling with a larger and higher one over the stage. I believe that too is uncertain. The perfect auditorium must be a box; fireproof, with no openings in the ceiling and with the upper exit hallways slanting downward for a considerable distance, fireproof throughout and non-heat-conducting, in order to insure that no draft of air or other gases, or flames can pass to the top of the auditorium.

The chief opening would be at the stage. If there is sufficient height above the stage to create the proper draft the audience will be safe.

Safe it would be, but not comfortable. The galleries would smother in foul air from the people below, and just there is the trouble. How shall we ventilate such a box? The schoolhouse down draft principle of ventilation will not work, for the foul air of the gallery would contaminate the main floor, and cause drafts over the balcony rails.

On the other hand the architect meets trouble when he tries to adopt the updraft principle of ventilation by bringing fresh air to the occupant of each seat from the floor below. The main floor occupants do not want it! They call it draft; complain of catching cold so effectively that managers using such a system of ventilation often discard it and get on without any.

In this case the architect would have to put a ventilator in the auditorium ceiling, provided, we will hope, with emergency doors. He introduces fresh air at sundry floor registers from whence finally it reaches the balconies and

the ceiling ventilators. This allows the people to freeze or swelter according to location and temperature.

There are ways of overcoming this vexing problem, but the people must be educated to see the need of it before they will pay the bills and put up with some personal inconvenience for the general good. After the architect has done his share the people must realize that much of safety and of comfort in a theater depends upon them. They must be educated to understand what the theater question demands in order to arrive at a satisfactory solution and be willing to acquiesce in the requirements.

A theater audience is divided into three parts, the high payers, the medium and the low. The first class should not disregard the interest of the other two. They should not be satisfied with the blessings of fresh air and comparative safety from fire on the main floor, while their balcony neighbors are breathing foul air and running the risk of cremation by having a ventilator in the auditorium ceiling.

I believe the theater can be planned, heated, and operated so as to insure safety and health to all its occupants. Instead of a few high priced seats, a large number of medium, and many worthless ones, all seats in the house can be made desirable.

Some parts of the question have been carefully studied. No architect of theaters would think of making a seat that was not in full view of the stage. They should plan for the other requirements as well: a full and free exit in time of panic, a full protection in time of fire, a full supply of fresh air and a comfortable degree of heat.

After the study incident to the investigation of the Iroquois fire has been crystallized into results, upon which we can base the requirements of a perfect theater, let us put our knowledge into simple shape and make laws to govern the whole question for the whole country. Let this information and these laws be accessible and applicable everywhere.

Of prime importance would be the appointment of officials or a commission having arbitrary powers, to see that the laws were enforced; first as to the plans and specifications; secondly as to the construction, and lastly as to the operation of each theater and public hall.

It takes arbitrary power to enforce such requirements yet they must be enforced. It would appear from press reports of the Iroquois accident that what was everybody's business was nobody's business. Hardly any one man had authority to demand all the things that were lacking at the crucial moment. The building inspector could hardly have done it to all the theaters in Chicago without an army of assistants. He might have criticised the plans and the construction, but as to supervising the operation of the theaters so as to insure safety, it would have been beyond his power to accomplish.

In this case every man seems to have had his reasons for doing something wrong or neglecting to do something right, and every one placed too much confidence in the "fireproof" reputation of the building. To quote from evidence, it is reported that the engineer of the theater testified that "the possibility of a fire or panic was so unthought-of-a-thing, that the management had never even considered such a contingency or taken any precautions to avoid it."

It should be the duty of the proposed officer or commission to know whether a building was fireproof in fact or by reputation only. There should be no dependence placed upon anything but facts.

To sum up the matter as above outlined we should know in the first place what constitutes a perfect theater. This knowledge should be put into the form of a universal law. This law should govern the planning, construction and operation of theaters. Special officials or a commission should be appointed to see that the law is enforced.

The investigation now in progress may prove that the architect, builder and manager of the Iroquois theater were to blame for the catastrophe; but the people themselves must realize sometime, and the sooner they do it the better, that a duty lies upon them of making it impossible for one man, several, or any number of men to work in such a way as to plan, build and operate a faulty theater.

It is true there are drawbacks to the plan of appointing special officers or a commission. Corruption may influence their actions. Paramount is the preservation of human life, and certainly it would be well to make this a federal affair. The United States government should be back of this; should control all there is to do about theaters. The office of the government architect should be the center of information for theater planning, building and running. The penalties for violation of the law should be so severe as to make it suicidal to attempt violation. Free rein should be allowed individual architects to make improvements, to elaborate designs, to impress their individuality upon their work; but the whole should be subject to the approval of the federal authorities at last.

If anything has need of being under governmental control it seems to me this has. The United States government has time and means to conduct experiments, and decide on what is best. It has power to enforce its decisions.

Whatever course we adopt, now is the time to adopt it. The public will endorse legislation that will prevent forever calamities so needless as the Iroquois theater fire.

Yours truly,
WALTER S. PARDEE,
Architect.

Profit-sharing, as a remedy for labor troubles has had small vogue of late, if we except the much-lauded attempt of a year or so ago to reach the savings of employes of the U. S. Steel Corporation. The success of that attempt—from the standpoint of the managers—will do more to make profit-sharing unpopular than can be undone in a decade. By-the-by, if the Standard Oil crowd have captured the management of the Steel Trust, what sort of steel and prices are to be expected?

There are two arts that the most progressive people of the globe should wish to cultivate in particular. One of the arts is courtesy, the other is architecture.

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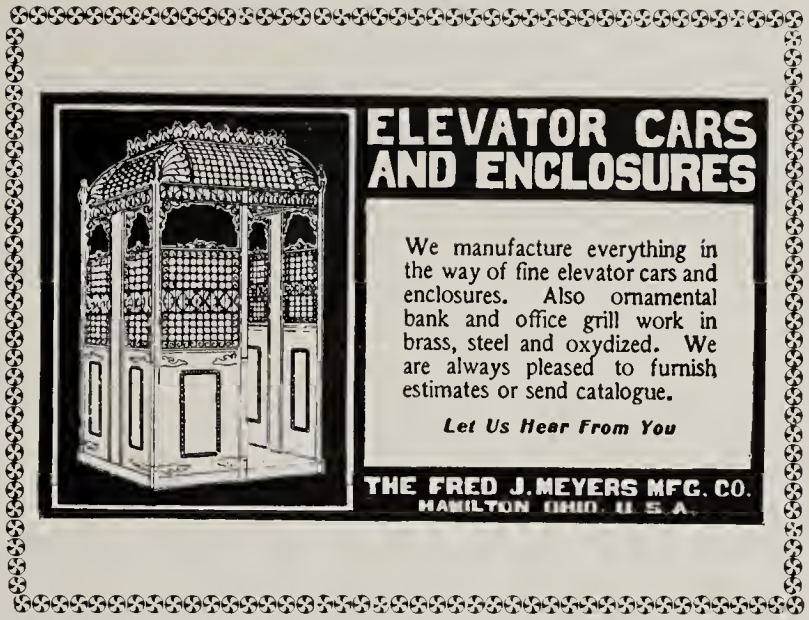

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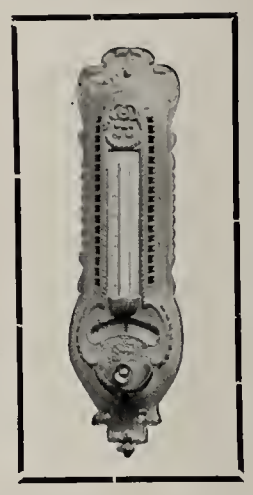

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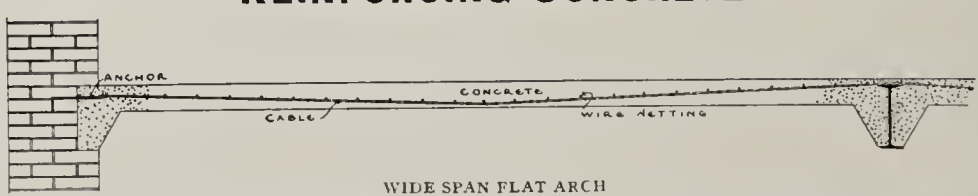

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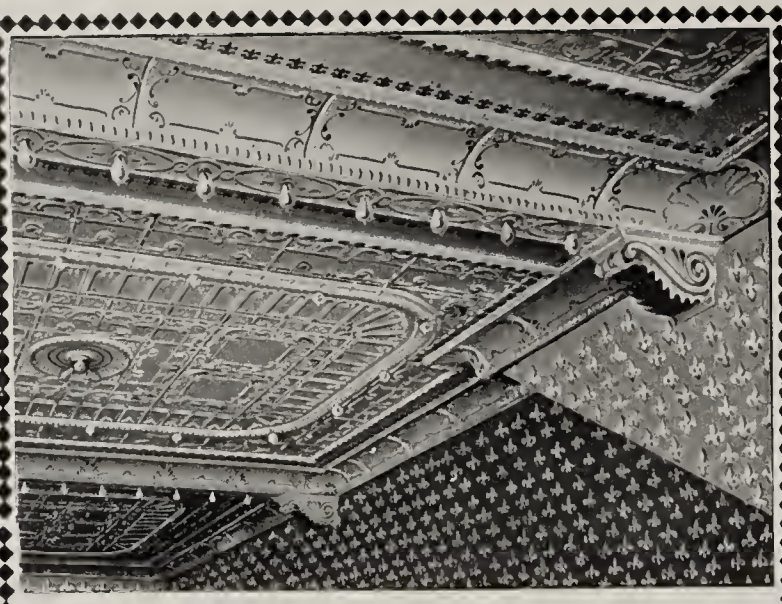

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Canada Patent, March 19, 1900. U. S. Patent. April 15, 1902.
Other Patents Pending.

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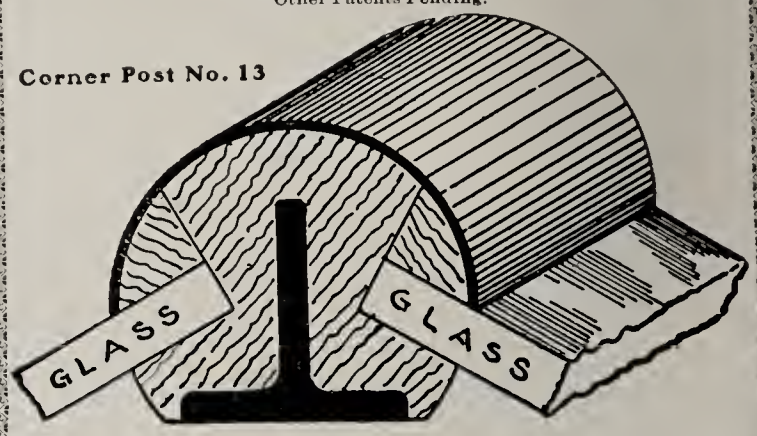

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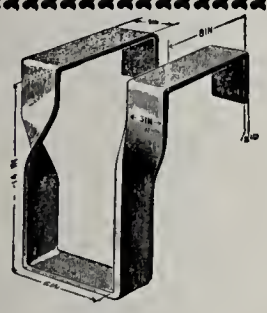

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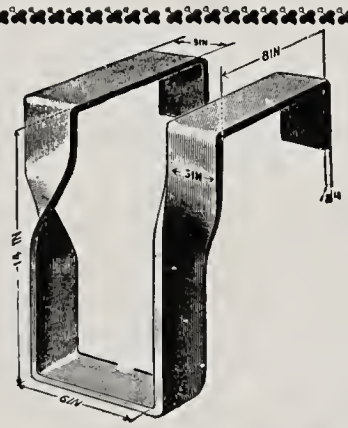

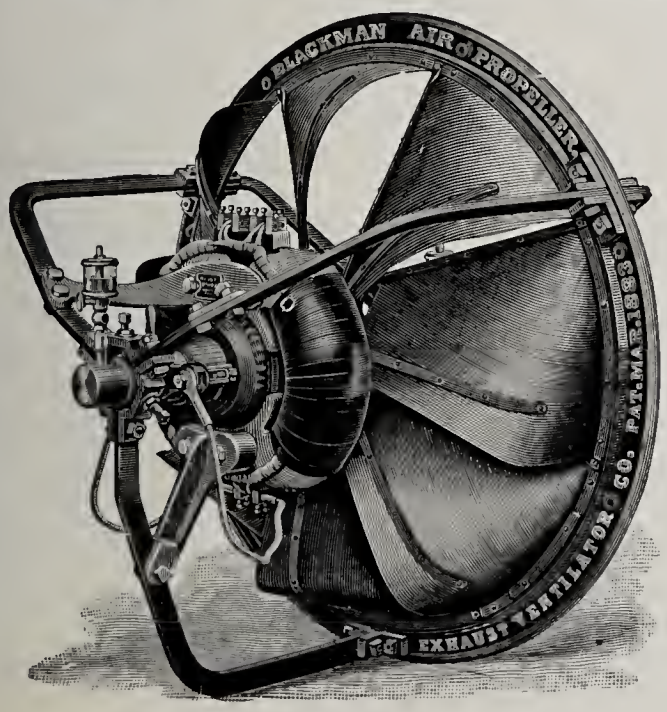

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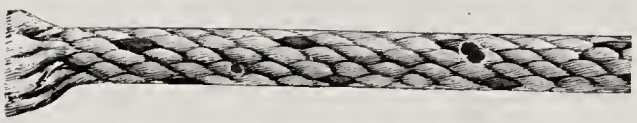

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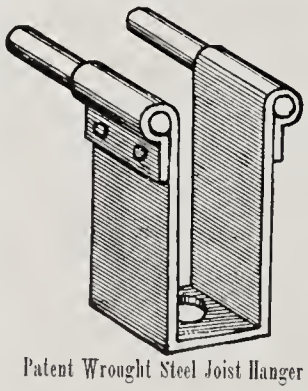

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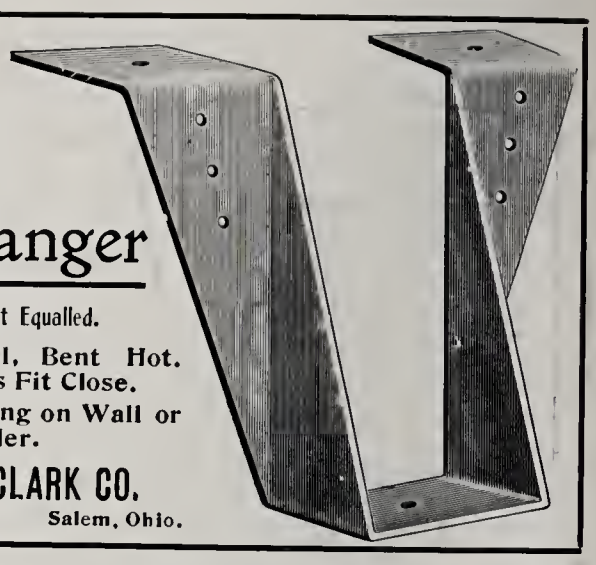

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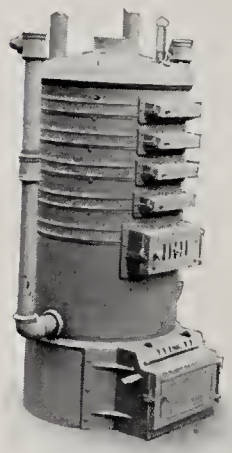

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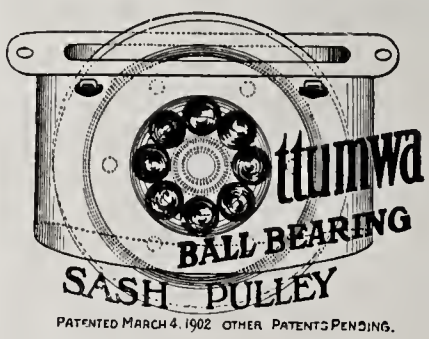

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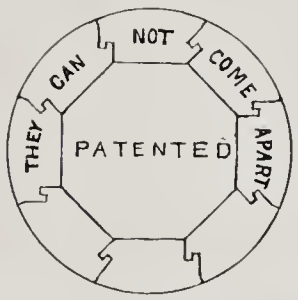

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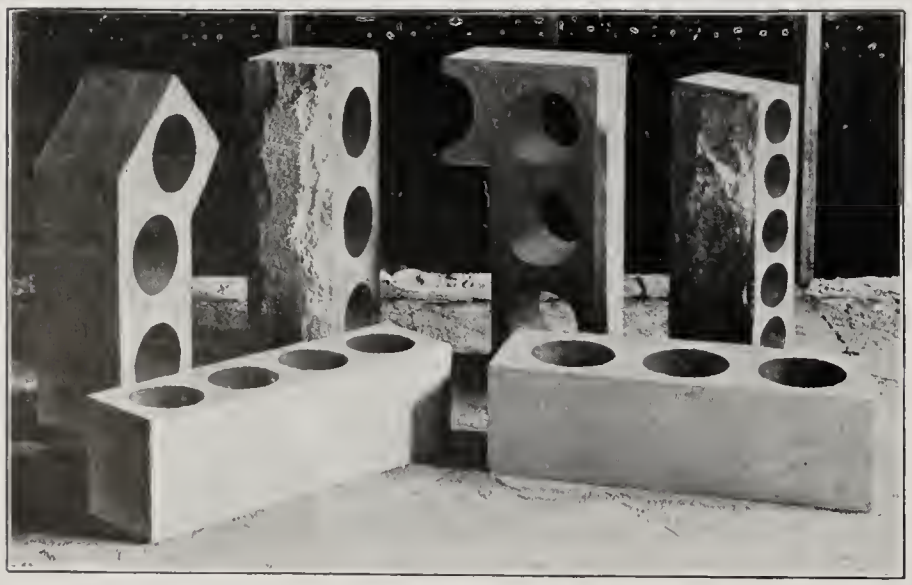

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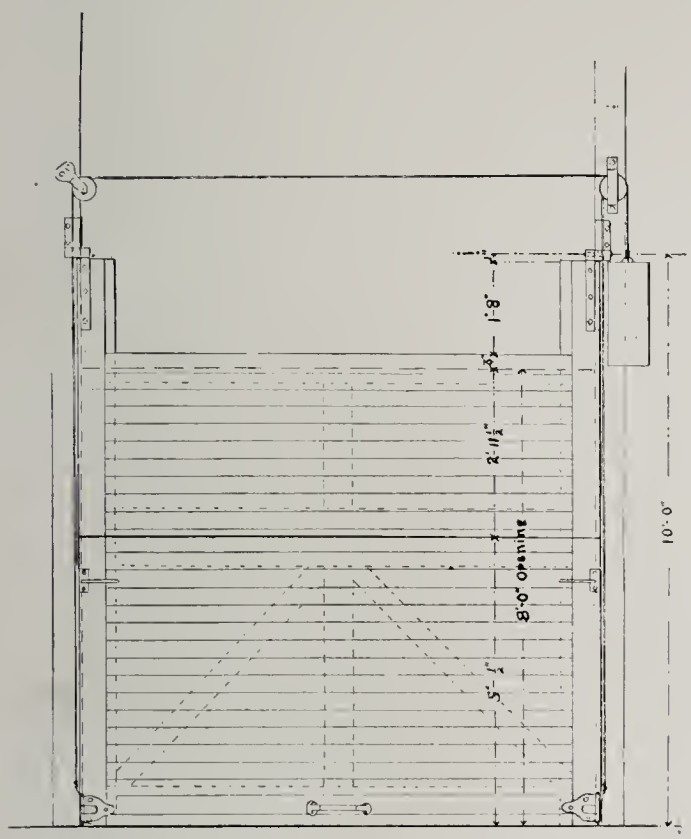
An important feature of every large warehouse and freight house and one which should be thoroughly looked into by all engineers and architeets is the manner in which the loading and unloading or shipping platform should be enclosed.

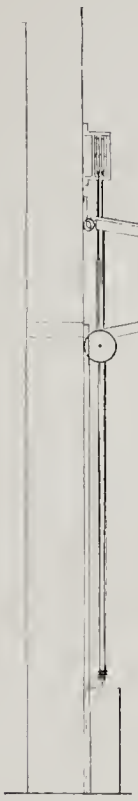
The Cross Horizontal Folding door, which has only been on the market about three years, appeals to us as the most common sense door for this purpose. It is simple, easy to operate, durable, warm; occupies no valuable space, when either opened or elosed. And, last but not least, it is the only door on the market in which glass can be used, thus admitting light into the building, which is very important, especially on a rainy day, or in a building which is naturally dark; when all the doors are closed, this feature proves invaluable.

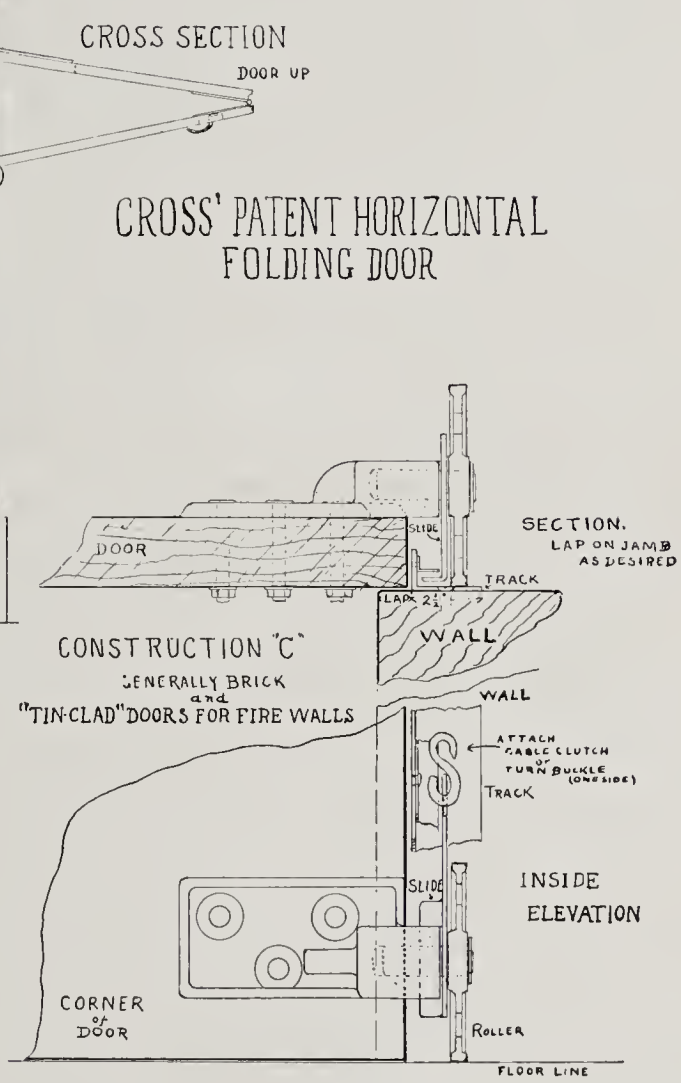
Ten of these doors are installed in the Deere & Webber Co.'s new warehouse in Minneapolis, the contractors having used wired glass in the upper half of the door, as shown in adjoining cuts, and the users, Deere & Webber Co., are very much pleased with them.

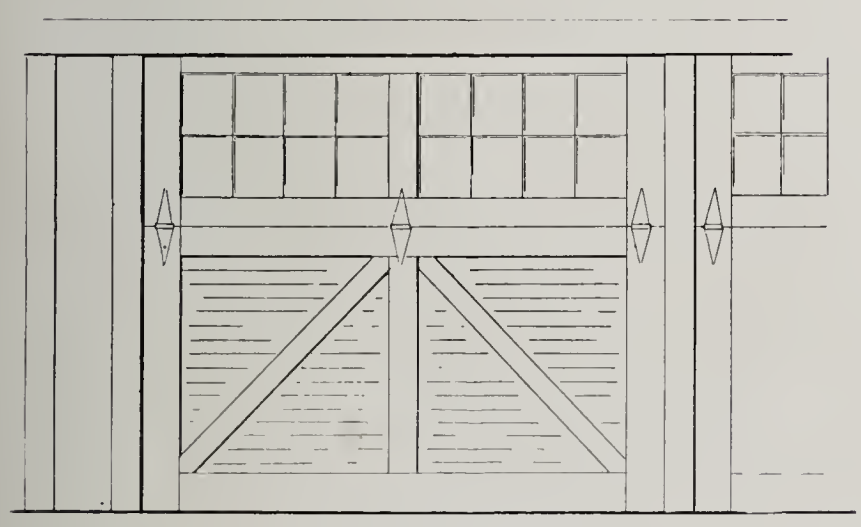
Some time ago the C. M. & St. P. Ry. put a number of these doors in their fruit station, made entirely of wood, and these also have proved very satisfactory.



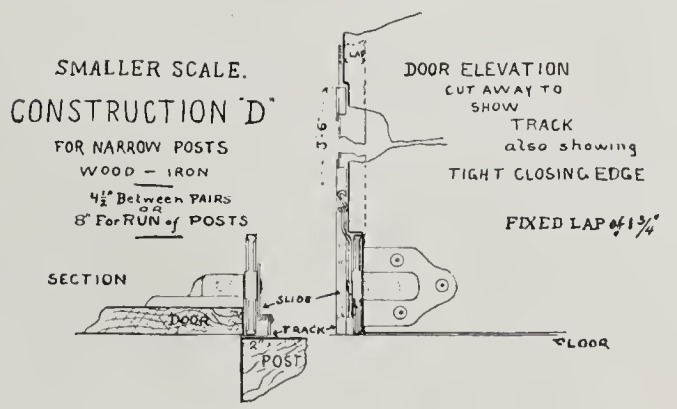
INSIDE ELEVATION
WITHOUT SASH







OUT SIDE ELEVATION
WITH SASH



SECTIONAL VIEW OF THE CROSS HORIZONTAL FOLDING DOOR.
Manufactured by the Variety Mfg. Co., Chicago, Ill.

The door is of a Jack knife principle, being made of two halves, which are hinged together in the center, the top half being hinged at the top of the opening, a counter balance, which is placed in a box at the side of the door, is fastened to the bottom of the door by chains which run over pulleys at the top of the door, and are securely fastened to weights. The door is pulled out in the center and rolls up on rollers which run on guides at either side, and the door stands out over the top of the opening when open. If it is placed on the outside of a building, it forms a sort of an awning when in this position. When closed, the door fits snug and tight to the guides and can be made to lock or unlock on either side, or both if desired. It is warm as well as burgular proof.

The Variety Mfg. Co., Chicago, Ill., who are sole manufacturers and owners of patents, have opened an office at 415 Sixth Ave. South, Minneapolis, of which Mr. W. M. McGillicuddy is in charge and who will be pleased to call with models, cuts, etc., and solicits your inquiries.

VIEW OF THE CROSS HORIZONTAL FOLDING DOORS
In the Lake Shore & Michigan Southern Freight House, Chicago, Ill.
Manufactured by the Variety Mfg Co., Chicago.

CONVENIENT AND ECONOMICAL—THE UNIVERSAL OIL BURNER.

Since the recent discovery of the vast Texas oil fields, and new wells opened up daily in nearly every state in the Union, attention has been directed to oil as fuel with the result that many inventions have been made to utilize oil for the household needs.

There are several so-called oil-burners on the market, but the great trouble with them is the expense in operation. Now, however, this great obstacle to their adoption has been entirely done away with through the patents owned and controlled by the Universal Oil Burner Co., of St. Louis, Mo., with branch offices at Room 9, Corn Exchange, Minneapolis, Minn., on the apparatus known as the Universal Oil Burner.

This is demonstrated in many different ways, but especially so from the fact of their having more of their burners in actual use at the present time, than all other companies combined, and one of the principal things which has made the above company leaders in this special line of today, is the fact that they supply the oil to all purchasers of their burners themselves, so that the consumer of the fuel does not in any case have to pay as high a price as is generally charged for oils for this purpose.

Oil at its present high price can be delivered (even if purchased from the Oil Trust) to the consumer any place in the United States at 3 1-2 cents per gallon, and in many sections of the country at a much lower price and pay well for handling.

The Universal Oil Burners make a dry gas that is unlike natural gas and with a mixing arrangement attached, consumes 80 per cent of oxygen of the air. With this two gallons of oil is more than equal to a bushel of coal, making a clear, blue, smokeless and odorless flame.

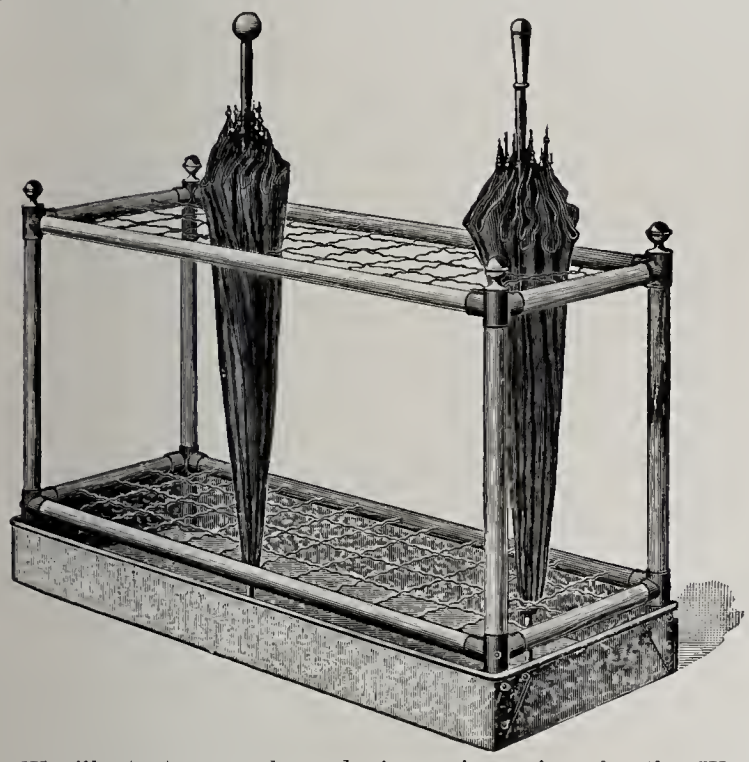
The concern proposes to make all kinds of Oil Ranges, Heaters and Furnaces, Heat Radiators, Gas Stoves, Plumbers' and Tinners' Furnaces, Hot Water Heaters and Oil Gas Lighting System.

The company is incorporated under the Missouri State laws, and their stock which but a short time ago sold for 20 cents a share, is now selling at 60 cents. Parties desiring to invest in industrial stock could perhaps do no better than to communicate with the authorized fiscal agents, Messrs. McLean & Huges, of Lake Crystal, Minn., who will be pleased to furnish all other necessary information.

THE IDEAL UMBRELLA HOLDER.

A rack outside for your wheel, or a holder for your streaming umbrella, is a mute invitation none the less effective as argument for further care of his patron on the part of Mine Host. What do people want? is the question everyone must ask himself if he wishes to prosper.

Everyone wants an umbrella when it rains, and a place to drain it the moment he comes under shelter.



We illustrate a rack made in various sizes by the W. J. Clark Co., of Salem, Ohio, that is at once light and strong, with capacity for forty-eight umbrellas in the size usually chosen.

What no one wants is soaked floors, blurred walls or mildewed wainscoting. Write for No. 8 circular describing the holder, to the address above.

A MODEL OF ITS KIND.

Prof. P. A. Carciofini, manager and director of the Minneapolis Athletic Club, has in the past two years established one of the finest and best equipped gymnasiums and schools of physical culture in the West, which is strictly up to date and now has a total membership of 300, composed of the most prominent business men in the city of Minneapolis.

PROF. P. A. CARCIOFINI.

Prof. P. A. Carciofini was born in Italy and raised in England. Coming to this country fifteen years ago, he has met some of the best men in his class, among them being Kid Carter. Having defeated him he was induced by his wife to give up pugilism. Since then he has been instructor at the following places: Richmond, Va., Petersburg Athletic Club, Petersburg, Va., Lynchburg Athletic Club, Lynchburg, Va., Atlantic City, N. J., Reading, Pa., Y. M. C., Camden, N. J., Providence, R. I., Potomac Athletic Club, Washington, D. C., and West Point U. S. M. A., N. Y. For five years he also taught boxing and fencing at Princeton and Columbia Universities; also at Lake Wood, N. Y., besides teaching at Dr. W. G. Savage's Institute of Physical Culture, New York City; the University of Minnesota, and at Saratoga Springs, N. Y. While there he treated John D. Rockefeller and Gov. B. B. Odell of New York.

Besides being one of the cleverest boxing instructors in the country, he has the finest system of physical culture in the United States which he has brought to a state of perfection during the past fifteen years of his experience in that line. He has been associated with the best men in the country in his profession and stands second to none in the United States in his class of work, including boxing, fencing and body building. In addition to the above he is a professional masseuer. His wife has also received special training as a masseuese, and assists Prof. Carciofini in all of the ladies' classes.

He has three assistants who can hardly be equalled in their line. Mr. A. H. Felkey, the wrestling instructor, is champion light weight wrestler of the West, while Mr. A. B. Mallett, the fencing instructor is champion of the Northwest. Mr. Jeff Thorne, the noted English pugilist, is a boxing instructor and all around gymnast. He was middle and heavy weight champion of England for five years. He has fought Bob Fitzsimmons, Tommy Ryan, and Kid McCoy, and later trained Fitzsimmons for his fights with Sharkey, Ruhlin and Dunkkorst, besides being his sparring partner. For one year Mr. Thorne also assisted Prof. Sandow at his physical culture institute at London, Eng. He has won third medal for proficiency at Piccadilly Hall, London, Eng. in the International Gymnastic Competition.

Anyone in need of the benefits to be derived from the above work will save time and money by consulting Prof. P. A. Carciofini, either by mail or in person at 241-3 Nicollet, Minneapolis.

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The MINNEAPOLIS HEAT REGULATOR Is applicable to furnace, steam or hot water apparatus. Can be applied to old plants as well as new. Automatically controls the drafts, a change of one degree at the thermostat, located in living room is sufficient to operate the dampers. The device is as simple as a clock. Gives perfect satisfaction. Has been upon the market for twenty-two years. Booklet for the asking. Specified and recommended by leading architects. Sold under an absolute guaranty with free trial.

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H. S. BITTNER,
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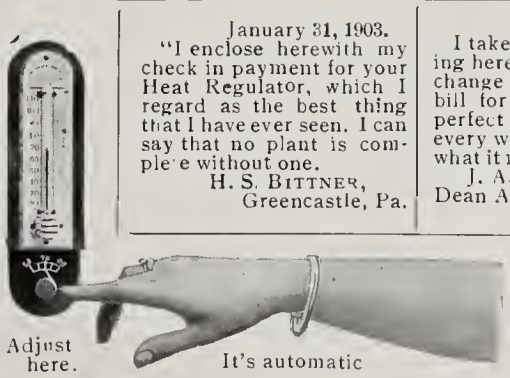
January 24, 1903
I take pleasure in enclosing herewith New York exchange for amount of your bill for Regulator. Is a perfect success, and is in every way satisfactory and what it is represented to be.
J. A. DIBRELL, M. D.
Dean Arkansas University
Little Rock, Ark.



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"COLT" Acetylene Gas Generator

(CARBINE FEED.)

Manhanset House, Shelter Island, N. Y. using 1000-light plant.

A Perfect Working Machine.

Easy to re-charge, emits no odor, wastes no gas, guaranteed satisfactory

We are aware the Architects of the Northwest know of other machines which have proven failures, but we wish to inform them that the "Colt" will please in every case, and is being used extensively, especially throughout the East for lighting all kinds of buildings—large or small. COOKING can now be done economically and satisfactorily with Acelytene gas when the Colt generator is used. The many points of superiority of Acelytene over all other illuminants and the "Colt" over all other machines is well set forth in a finely illustrated catalogue which we will be glad to mail on application.

N. W. Agency, J. B. COLT CO.,
I. E. BURT, Manager
238 Hennepin Ave., MINNEAPOLIS, MINN.

The "COLT" took highest award, World's Fair Buffalo.

IMPORTANT NOTICE.

THE great saving in both material and labor secured through our end-matched flooring invention, Patent No. 531,711, as well as the superior quality of the floors, has led to the general adoption of end-matched flooring all over the United States.

The Government engineers, after the usual careful and painstaking investigation, have also approved it and specify its use in Government Buildings.

While we expect to enforce our rights to the extreme limit of the law, we have made arrangements to **protect the public** and give builders and others an opportunity to procure the end-matched flooring **without danger of litigation.** This may be done through our licensees who, in order to identify the licensed flooring, will invariably mark it **Wilce Patent Jan. 1st. 1805**, together with their own **name or trademark.**

Rumors are afloat that the price of end-matched flooring will soon be advanced two or three dollars a thousand. We wish to say that there is no foundation for any such rumor, and in this connection we ask you to

REMEMBER

First. That the United States Circuit Court has fully sustained our Patent.

Second. That we not only consented but joined in the request to reopen the case to permit further evidence to be submitted.

Third. That this action does not indicate any change in the **opinion of the Court**, as it was by consent of both parties.

Fourth. **That end-matched flooring has not been advanced in price** and **will not** be at any time, any more than is warranted by the usual conditions governing the lumber trade.

Fifth. That there is not an **inch of waste** in laying end-matched flooring, and besides this there is a **great reduction in the cost** of laying it.

Sixth. That it makes a better floor.

Seventh. That end-matched flooring will **always be sold** at a price that **insures the builder** a substantial **financial saving** over any other flooring in use of equal quality.

Eighth. That in using end-matched flooring an under or sub-floor is unnecessary, thereby saving the cost of material and of laying such under floor.

Use No Other, Buy No Other.

Respectfully yours,
E. HARVEY WILCE, GEO. C. WILCE,
THOS. E. WILCE.

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WOOD AND STEEL FRAME BALL BEARING GRINDSTONES

SPECIALTIES

Mr. F. A. Greenlaw,

C/o The Western Architect,

Minneapolis, Minn.

Dear Sir:-

We write to acknowledge the receipt of the Western Architect of August in which you very kindly print on page 11 a copy of a letter which we wrote July 24th, simply stating facts as they seem to us. The Western Architect should have a great boom. It is a high toned, clean cut publication and as manufacturers of hardware specialties, we are glad to appear before the public in such good company. Had we supposed for a moment that anything we said was to appear in print, we should have tried to put it in better shape.

Yours respectfully,

D.W.S.--F.A.H. Wilcox Mfg. Co.

D. W. Simpson

DRAKE MANTEL & TILE CO.

MANTELS-MARBLE-MOSAICS.

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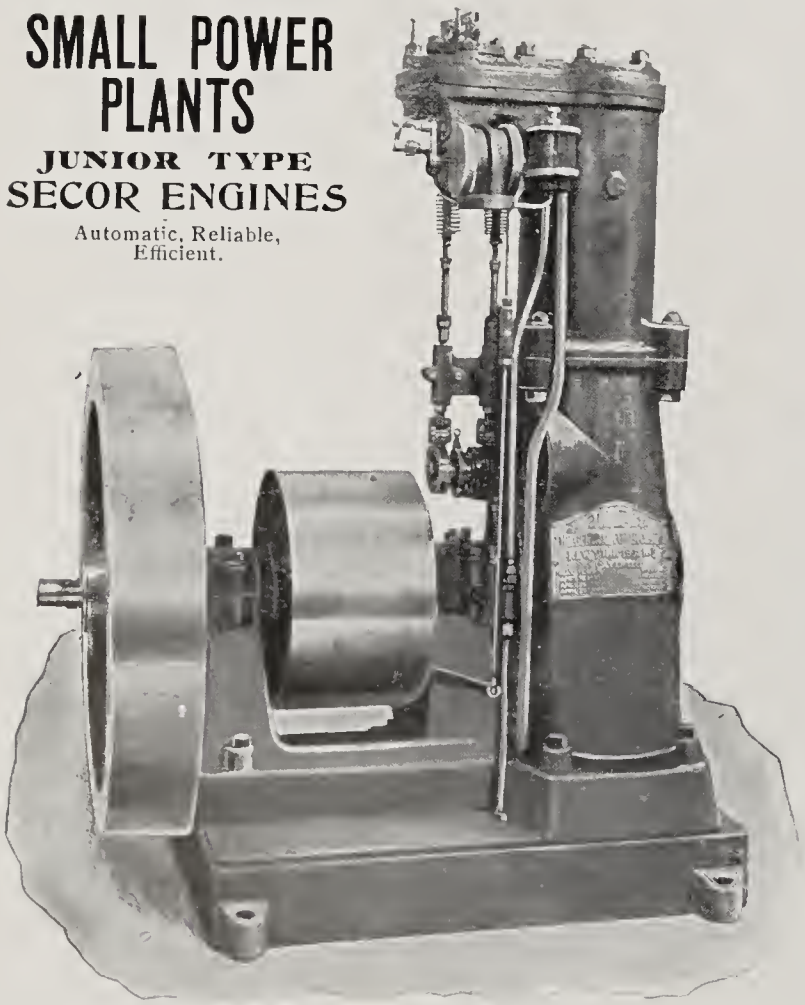

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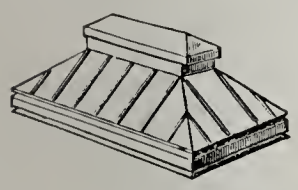

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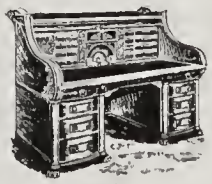

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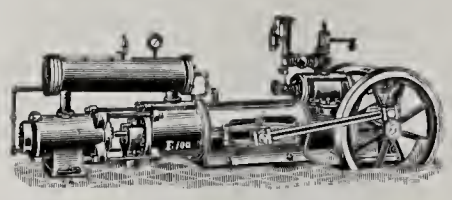

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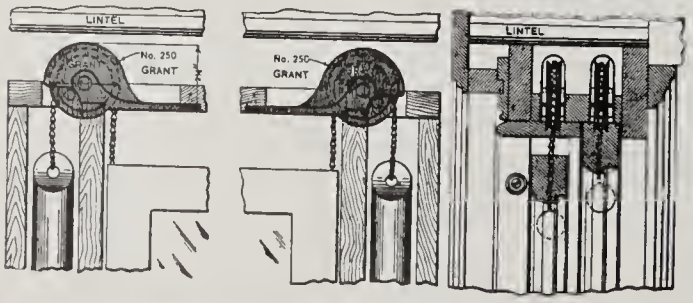

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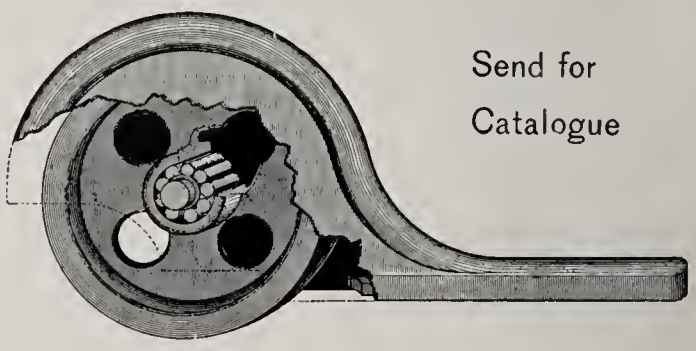

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DEVOTED TO ARCHITECTURE AND ALLIED ARTS

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VOL. 2. SEPTEMBER 1903 No. 9.

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PERHAPS "labor day" has about it an element helpful to an "era of good feeling," for it brings to a close in Minneapolis the strike of tenders and bricklayers, which has been running for about a month, albeit in a sort of half-hearted way. Wages of the bricklayers were not in issue, they going out in sympathy with the tenders. Work is resumed at the old wages, but arbitrators are to say whether or not these were proper.

AN UNSOPHISTICATED reader of the current number of McClure's will conclude that at a time mentioned there were just 35 sheet metal contractors in the "Association," with headquarters in Chicago, for did they not in the "executive session" peculiar to themselves decide that the work on the buildings of the sleeping-car company was fairly worth $25,000, and did not the lowest bidder take it at $42,000, and was he not obliged to pay the other members $500 each? This reader will be confirmed in his figures when he reads "and humorously enough, if you look at it that way, the * * company has not learned to this day that it was held up and robbed."

There are others, however, who have had experience with the officials of this company, who cannot be got to believe that there were so many members in the Sheet Metal Contractors' Association.

FROM the beginning until something like a decade since, if man wanted to go some place faster or easier than his legs would carry him he was obliged to procure the power from without. Then came the bicycle, and he who had the price learned that with it and a given expenditure of time and effort he could cover three or four times the distance that he could when using nature's own and only aids. Then the price fell to where none but the vulgar could ride a bicycle without loss of caste. Now he who has the price proclaims it by going about in some sort of auto wagon, but the distinction gained thereby is doomed to short life, for soon we will see the groceryman making deliveries with his auto and touring the country with his wife and babies on Sunday in the same. And altho the news from the houseboat on the Potomac is not very exciting, yet if we are to believe half that is told of what is going on in the neighborhood of the Seine, another decade will not have been passed before those who have the price will be seen flying about at all times.

E. P. BASSFORD.

Mr. E. P. Bassford, the subject of this sketch, was born June 7, 1837, at Calais, Maine. His education was received at the Calais Academy, and in the public schools of that place. After having spent seven years at the carpenter's trade, he studied architecture with Mr. Charles Painter, of Boston, Mass., after which he went to Portland, Maine, subsequent to the big fire of 1875, and formed a partnership with Mr. Sparray, an architect of that city.

In 1866 he left Portland and came to St. Paul, where he entered into the contracting business with P. Donovan, they working together for about two years, after which he went to work for one of St. Paul's oldest architects, Mr. A. M. Radcliffe, remaining with him for three years, when he hung out his own shingle, which has been hanging out ever since. He had, it is said, but fifty cents when he began practicing in the Saintly City, and though he says he is now seventeen dollars in debt, we have no fear but that we shall be able to get the price of our subscription from him for the WESTERN ARCHITECT for the current year. Mr. Bassford has probably erected more buildings in St. Paul than any other architect, as well as a great number throughout Minnesota and the Northwest.

He has invariably been a hard worker at his profession, but now the less work he has the better it agrees with him, though you will find him a busy man almost any time one visits his office. He has reared a family of six children, four sons and two daughters. He was twice married, and went through both events with all the happiness allotted to such occasions.

Mr. Bassford never had a law-suit, nor trouble with any of the many contractors he has dealt with, always getting just what his plans and specifications called for by fair and just treatment to all concerned. He states that he owes his success more to the friendship of the builders than to any extraordinary amount of ability, though he says "there was a time in his life that he thought he knew it all, but the older he grows the less he thinks he knows."

OF STRIKES among St. Paul building trades the present season, that of the plumbers easily leads in importance. Reference has been made in these columns to the attempt by the employers to head off the sympathetic features by injunction and to the refusal of Judge Kelly to grant the relief asked. The sympathetic features did not develop, however, and the employers are now having much the best of it. Not all of them held out against the demands of the union, so that the brunt of the battle had to be met by those who remained in line, but these made a notably determined and able fight. The dispute was mainly over wages, and primarily the recognition of the union does not seem to have played much part. The plumbers' union had things much their own way in St. Paul for some time and had driven at a pretty stiff pace, and while employers had pretty generally stepped up as commanded at the crack of the union whip, there were those among them whose flanks were still smarting from some of the activities of the union's agents. Why the rebellion by the employers was deferred so long does not appear clearly, but when it came there came with it a growing spirit of independence that has its parallel in many political rebellions, and it was not long before one could hear that the employers had determined to have a good deal more to say about the running of their own business in the future. They were pretty well assured of support by the Builders' Exchange, and with few exceptions owners of buildings under way were lenient. These exceptions were mainly among brewers and liquor dealers, who felt that they must not antagonize the unions.

Plumbers imported from the larger cities to take the place of the strikers did not relieve the situation as expected, so that the employers turned their attention to the smaller towns, and advertised for men in these places for a distance of several hundred miles from the seat of the conflict. Now no architect who has had any experience in these small places can have failed to note that the standard of workmanship is not high, yet the individual workman is apt to display much intelligence and aptitude, for the reason that he has always had to rely on his own headwork in getting things together. He is often found free from a certain stolidity that is apt to afflict the city workman, and although little familiar with the most approved ways of putting up work, he is both anxious and quick to learn. It must have been noticed also that with the tendency to simplification of plumbing work more and more is now done by the manufacturer,

while the work of assembling fixtures in a building is relatively both less and simpler than formerly, so that the trade of plumber is not one that impresses one as requiring a great amount of skill.

When, therefore, it became known in the smaller towns that there was a chance to learn how things were done in St. Paul and that good wages were to be had during the learning, there were plenty of men to be had, and they found not only good work awaiting them during the day, but that a trades-school for their benefit was in operation evenings. As might easily be foreseen, here were conditions too strong for any body of strikers unless backed up by sympathetic action by other unions, as this strike was not. We do not learn that any attempt was made by the strikers to take advantage of the state licensing law referred to in a former issue—a law requiring plumbers in cities of more than 10,000 inhabitants to hold a certificate of competency to be issued by a state examining board. Efforts to enforce this law had twice come to grief in the lower courts: once it had been held to be unconstitutional because of exempting smaller communities, and again it had been held by a St. Paul court that the employer is responsible for the character of the work, and that courts could not hold him responsible while dictating his means of obtaining results.

So long and prominently has Mr. Frederick Law Olmstead been before the American public as the foremost designer of parks, that some comments on his recent death in his 82d year fairly express a doubt if he has left any worthy successor. Indeed, it will be a long time before another landscape architect will have such opportunities, and should any one successor be fortunate enough to be commissioned to carry out works of such magnitude as those directed by Mr. Olmstead, the present taste for the "formal" in landscape would be likely to inure to the disadvantage of the later work in comparison. Mr. Olmstead did an unusual amount of knocking about during his minority, some farm work, some country house-work, some sailing, some academy and some special college work, most of it with the ultimate purpose of becoming a farmer, a calling which he did pursue for several years, during which time he made the acquaintance of A. J. Downing and Calvert Vaux. Soon we find him traveling extensively on foot or horseback, and publishing books which exhibit his powers of observation. A conversation with a New York park commissioner led to his employment as superintendent of Central Park in '56, and later he and his friend Vaux won in the competition for the ultimate development of that great pleasure ground, and they were appointed "landscape architects"—many of the lesser structures, such as bridges, will be remembered as of Vaux's designing—but their scheme has been marred to some extent by admitting some of the present large buildings. A list of all the works upon which Mr. Olmstead has been employed looks at first sight to include all of the more prominent parks in the country, and, in fact, his professional activities were not confined to the limits of the United States. It is said that at Chicago in '93 he located every building of the White City. Mr. Olmstead was associated in business with distinctly able men from time to time, and his son, Frederick Law Olmstead, Jr., who has been the active member of the firm for several years, succeeds to the business of the firm.

When one takes account of the number of people who live in towns, the proportion of their time spent indoors and their consequent dependence upon the character of buildings for their health and safety, one wonders at the treatment building inspection departments receive at the hands of the public and representative bodies. As city governments are organized, however, this department ranks as about the least important.

Building laws are more advanced than one would expect, coming as they do from the same people who are responsible for the organization of the departments of inspection. By averaging the requirements of a dozen cities widely scattered between the Atlantic and Pacific states one obtains a very useful manual of building practice.

Curiously enough, much the greater number of these cities collect fees for building permits. This tax on improvements is in no case very large, yet in every case large enough, one would think, to very decidedly change the ratio of actual expenditure to the sums shown by the permits. Exact information is not obtainable as to whether people about to build regard these fees something like personal property taxes and report the expected cost of building on some such basis as they report their personal property to the assessor, but the temptation must be very strong and the self-justification easy. A building inspector could surely lose popularity in some communities by strenuously insisting that the fees prescribed for building permits tally with the cost of building. Whatever may be the effect of the fee system on the statistics of building operations, it certainly is a most ill-considered source of revenue, which some cities have wisely abandoned after a trial. The system finds some defenders, who argue that it is a sort of police charge, made necessary by the ignorance or cupidity of those who build, and that they as a class should be made to pay the cost of inspection. This reasoning would group people who build with liquor sellers and the like, who pay licenses as a contribution to the support of courts and constables, whose business they are supposed to promote.

In reality, building inspection departments came late in the organization of city governments—the city of Des Moines is still without a building ordinance—and city fathers, having parceled out all the revenue among other departments, resort to the fee system to support the new comer. These fees are no joke in some cities, particularly as they apply to small enterprises. In Duluth permit fees for a $10,000 building cost $20.50, while in Omaha that time-honored taxing principle "pluck the goose that squawks least" is still more in evidence, for there the fee for a permit for the first $1,000 of cost is $4.00. In Mil-

waukee and Denver permits are more equitably paid for. In the former city they are charged on the basis of the size of the building and in the latter at a uniform rate according to cost.

Some cities also have another "cheap and nasty" way of trying to make the building inspection department help pay its own way, or else they permit a disgusting little "graft" to attach to the printing of the building laws. These laws should be neatly printed on good paper, with no great waste in margins—a booklet that can be slipped in the pocket readily—and many towns appreciate this, but others permit the booklets to be "padded" with advertising in all degrees. St. Paul publishes a booklet in which a few ads are inserted on colored sheets. These are not very confusing, and not being excessive in number do not greatly increase the size of the publication. New Orleans and Denver, however, go to greater lengths, and admit advertisements in a form and in amounts to make it a positive nuisance. Sheets are printed with sections of the law on one side and "ads" on the other, while both are indexed in the same style, the law index being immediately followed or preceded by the index to advertisers. The latest edition of the building laws of Minneapolis is printed in easily the worst form of all. To architects who are accustomed to decent and orderly advertising in their literature, and who have some notion of the value of time and space, this jumble of laws and advertisements in a little reference booklet looks to be about the limit of petty saving or petty "pickings."

Secretary of the Treasury Shaw last month removed Mr. Henry Ives Cobb, special architect for the Chicago Federal building. No cause was assigned for this action. The building will probably be completed under the sole supervision of the supervising architect's office.

The first appropriation for the new building was made February 28, 1895, and today it stands without a window or a floor. It was expected that the erection of the building would consume five years, but the date of its completion is still problematical after eight years and six months. Vigorous protests have been made to the Treasury Department from time to time.

Mr. Cobb made the following statement recently:

"I was appointed special architect under a special act of Congress and served under Secretaries Carlisle and Gage. As to the rupture between Secretary Shaw and myself I have only to say that his methods do not conform with my ideas, and it is better that he should work with someone with less professional reputation at stake."

Tree planting, according to a news item, has been taken up by the Pennsylvania Railroad in order to have a future supply of ties of its own. The corporation has many odds and ends of land acquired in obtaining right of way which it has been leasing for farming purposes, but it now proposes to plant them to trees as the leases expire, and has already ordered a larger number of locust trees for transplanting. Locust is not spoken highly of for the purpose, but if we remember rightly the wood is prized for fence posts, which would indicate that it will prove valuable for ties.

HALL SEAT IN ITALIAN RENAISSANCE STYLE.
For Mrs. Edward C. Gale, Minneapolis.
Designed and Manufactured by Wm. Yungbauer, St. Paul, Minn

WILL MEET AT ST. LOUIS.

St. Louis will have as her guests on October 5 and 6 the leading architects of the United States. Beginning on Monday, October 5, the Architectural League of America will hold its annual meeting here. This gathering of renowned architects fortunately comes at the right period in the history of St. Louis. During the past year civic pride has been greatly stimulated, and as these men are leaders in the great work of making cities beautiful, their papers and discussions on architecture will be listened to and read with much interest by public-spirited St. Louisans. The general practice of the League at its annual meetings will be followed out and photographs of the best work done during the year by members will be on exhibition at the St. Louis Architectural Club. This will no doubt be one of the most popular features of the meeting, and should attract all those who are interested in beautiful buildings.

Mr. Ernest Helfensteller, of the Club, is undoubtedly the right man in the right place when it comes to providing entertainment for any number of guests. He has aranged a program that promises to make this meeting one of the most memorable in the history of the League. Early arrivals will be entertained at the club rooms on Sunday and shown about the city by the entertainment committee. On Monday morning there will be a short meeting in the Architectural Club rooms to organize the convention. The delegates will then take a car ride about the city, winding up at the World's Fair administration building, where lunch will be served, and the second session of the convention will be held in Convention Hall at the World's Fair grounds. Tuesday's meeting will be held at the Museum of Fine Arts. All papers prepared in advance will be read at this meeting. On Tuesday evening the delegates will be entertained with an old-fashioned symposium at the Architectural Club. The American League of Architectural Clubs stands for the betterment of architecture in America, and St. Louis is indeed fortunate in having an opportunity to entertain its members.

HARROSE HALL" DOME OVER GRAND STAIRCASE.
Henry Lord Gay, Architect, Chicago.

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"HARROSE HALL" - GRAND STAIRCASE AT BALCONY LANDING.
Henry Lord Gay, Architect Chicago.

"HARROSE HALL" VIEW IN PARLOR LOOKING NORTH.
Henry Lord Gay, Architect, Chicago.

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„HARROSE HALL"—OPEN PAVILLION.
Henry Lord Gay, Architect, Chicago.

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"HARROSE HALL" -CARRIAGE PORCH.
Henry Lord Gay, Architect, Chicago.

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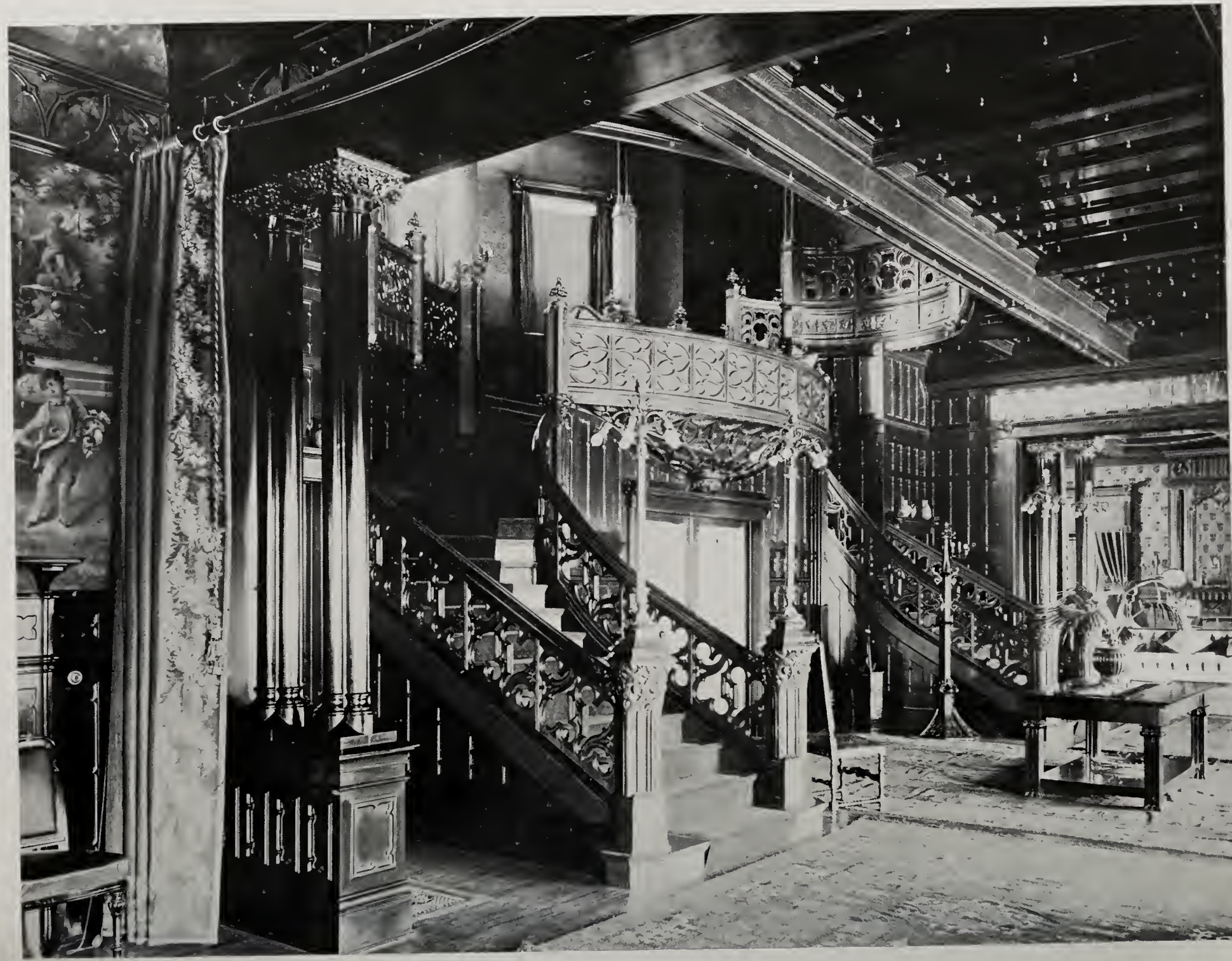

HARROSE HALL"-GRAND STAIRCASE AT FIRST STORY.
Henry Lord Gay, Architect, Chicago.

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"HARROSE HALL"—EAST FRONT FACING ROADWAY.
Country Seat of Mr. Harvey G. Selfridge, Lake Geneva, Wis.
Henry Lord Gay, Architect, Chicago.

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PLASTIC CEILINGS IN RELIEF, COLONIAL DESIGN.

Supplement to
The Western Architect.
September, 1903.

Mf'd. by The Decorator Supply Co., Chicago, Ill.
Harold Johnson, N. W. Agt., Minneapolis.

Library of Congress

OLD FORT SNELLING MINN.
REMODELED FOR ONE SQUADRON OF CAVALRY.
UNDER DIRECTION OF LT. COL. GEO. E. POND
D. Q. M. GEN. U. S. A.
1820 — 1903.

PERSPECTIVE DRAWING OF THE REMO
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Supplement to
The Western Architect.

N OF OLD FORT SNELLING, MINN.
Mson.

September, 1903.

UNIVERSITY OF ILLINOIS

AN ARCHITECTURAL COMPETITION.

BY P. U. DEKAF.

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I had worked hard at the drawing table in an architect's office in New York for a number of years, and found myself wearing out. On the advice of my physician I went west in search of health and recreation.

When I arrived in a well known western city, the first thing that struck me was to find if there were any old acquaintances of mine in the list of architects. On looking over the directory I found Jack Morton, who had learned the profession in the same office as myself. Calling on him, I was very cordially received, and when I told him I wished to see the harvesting done in the great grain fields of the west, he at once invited me to accompany him to an architectural competition up the country, where I could see, not only the grain harvesting, but also the way forehanded county commissioners and shrewd architects harvest their winnings. So we went the next day to the county seat of Jay county. There were six architects there, some of whom had been there for a week. They consisted of my friend Morton, Smith, Fox, Slick, Bulldozer and Knowitall. The commissioners numbered five: Ole Olson, a Scandinavian; Hans Schweitzer and Adolph Piepel, Germans; Henry Hawkins, an Englishman, and Patrick McMurphy, who said he was "Oirish, begob."

Morton introduced me to the commissioners as "a brother commissioner from a neighboring state, who wished to be present at the meeting to gain information as to the procedure when a court house was to be built in his county," and I was at once given a seat among the commissioners.

The competing plans were on exhibition for the commissioners and the citizens, but the architects were not permitted to lay eyes on them. While studying these various triumphs of the architectural profession I heard the landlord say to the commissioners: "Gentlemen, if yez'll kape thim architits in the city for three days, o'ill not charrge ye wan cint for what yez get at my hotel." On hearing this the commissioners immediately adjourned until the next day at 3 p. m., in order to circulate among their constituents and get in touch with the prevailing sentiment on the plans.

The architects at once went to work. Morton asked the board of commissioners down to the hotel bar to have something. They accepted with an alacrity that was simply enthusiasm. The other architects claimed they must have a share in treating their friends, the commissioners, and at once ordered the drinks all around. All charged it on their bills. By sounding Commissioner Schweitzer, Mr. Morton found that he was a Lutheran, and he at once claimed to have been descended from one of the original Lutheran families in Germany. He was a good singer, and so warmed up to his new-found brother Schweitzer that he was invited to attend the church sociable given by the Ladies' Aid Society to help the treasury, and the benefit of a social hour. He sang for the audience all the songs he knew and wished he dared tackle "Der Wacht am Rhein," but he was afraid to because he might fall down on the German pronunciation that he had said he was so proud of. Brother Schweitzer took him to his own home, where he had a cabinet organ. He found here such classic pieces as "Massa's in the Cold, Cold Ground," "Nicodemus Was a Slave," and other such favorites. The next morning he was too hoarse to speak above a whisper, but the Lutheran church congregation was working hard and faithfully for the Morton plan.

Smith attached himself to the other German commissioner, Mr. Piepel, who was chairman of the board. He soon discovered that he had a beautiful daughter, with whom he could not bear to part, for she was well on to 45 and still unmarried. He felt sure, he told Mr. Piepel, that a young lady of such grace and accomplishments must be very devoted to her father and mother to resist the multitude of suitors she must have had, because she could not bear to leave home. He informed Mr. Piepel that he was proud of the German blood that coursed in his veins, and of the German name he bore. (He explained that it was properly "Schmidt," but that he wrote it Smith because he was not proud and was willing to be like the ordinary name.) He dilated on the remarkable resemblance of Mr. Piepel to Bismarck, and he was perfectly acquainted with the features of that statesman, for he had a picture his Grandmother Schmidt had sent him from Berlin. And the chairman's wife was a perfect image of Queen Victoria, whom he had seen, while their oldest son was so much like the Prince of Wales that if he were to go along the Strand in London the crowd would certainly cheer him for the prince. He courted the beautiful daughter of the household until nearly daybreak, and had the whole family working hard for the Smith plans.

Knowitall caught on with Mr. Olson, whom he steered into one of the several saloons which the county seat boasted, and set 'em up in the "forty-rod" which the place afforded. Between drinks he assured Mr. Olson that he should be given the plans. It was drawn after the most approved style of Scandinavian architecture. He told Mr. Olson that he could see he was gifted with an eye for harmony and symmetry, and knew that he could see at a glance the Knowitall plans were the only set in competition which preserved all the harmonies of the old country, and united with them all the conveniences which were up-to-date. He stayed with him until the "forty-rod" began to work, when he got into a fight with the barkeeper, and both he and Mr. Olson were deposited in the street.

Bulldozer had letters from the bankers of his city and the governor of the state, in which they all united in declaring him to be the best, and in fact the only real architect in the country.

Fox was armed with letters from the leading members of the clergy of his home, stating that he was not only a very able architect, and the one in whom they all placed their entire reliance, but he was also a "Christian gentleman," and urged that he be given all courtesies

possible. The Irish commissioner got hold of him in the progress of his missionary work, and both were "full" in the morning.

Slick was loaded with letters from the wholesalers of his city to the retailers at the county seat, stating that he was the only honest man in the architectural profession in the whole Northwest. He was up early in the morning and got a string of fish (bought them on the street), which he presented to Mr. Hawkins, and stopped to breakfast with him, and told him he had connections in London himself. After breakfast he wandered to the hotel and made a bee line for the bar, which he patronized freely, charging it all on his bill.

At three o'clock the second day the two Germans were the only sober men among the commissioners, and they adjourned for 24 hours more.

I had not seen anything of Morton during this period, but shortly after the meeting adjourned he navigated along the street, taking up the whole road and singing a tune to which he tried to fit the words of "My Country 'Tis Of Thee."

During the interval between their sobering up and the time for the meeting, the architects all kept at work on the lines which they had begun. Commissioner Piepel demanded of Smith if he intended to marry his daughter. He had been making violent love to her, but meant it to be platonic, as he had a wife and family at his home. This caused him to keep out of sight the remainder of the day, and he went to fish the next morning with Slick.

At 10 a. m. the architects were having a re-union at the bar, indulging in enthusiasm water, and charging it on their respective bills. A more fraternal lot of men was never seen than these architects; each extolled the good qualities of the others, and was delighted to mention the virtues that they possessed. I was introduced to them by Morton as a county commissioner, looking for pointers to be used when my county was ready to build. Every one of them took me aside quietly and told me how to begin, and said that the other fellows there were all good enough, but that their architectural knowledge was limited. Morton was intensely amused at this.

At last 3 p. m. arrived and the commissioners assembled promptly. They balloted to see which architect should have the privilege of explaining his plan first, and the lot fell on Bulldozer. His plan was highly colored with Paine's Gray. He began by diving into acoustics, reflected sound, pure ventilation, excellency of design, and finished with a lecture on classic architecture, after which he declared his plan was made. He also gave them the tip that he was the best architect in the whole world and owned money enough to build the court house and the whole town. He had documents to prove it, and he then unlimbered the letters from bankers and the governor. He closed by saying that the other architects were absolutely without any conception of the finer points of the architectural profession. He demanded that the plans be awarded to him on general principles. Commissioner McMurphy objected to the building being painted blue as shown in the sketch. "Because there are two Dootchmin ahn the booard, it don't make iny difference. The building must be painted grane or nuthin'. We don't want that plan, be-gorry."

Fox was next chosen, and Commissioner McMurphy sang out, "Howld on, Fox, is she painted grane?" "She is," replied Fox. "Go ahead, Darby," replied the Irishman. "Dot vos a lie," vociferated Commissioner Schweitzer, "it vos red, ain'd id?" The plan was a nice water coloring with brick red for the building. "Yous is color blind, Dootchy," remarked McMurphy. Mr. Schweitzer replied, "Yust look vonce already at dot picture. Vas it red or vas it green?" "Ay skal go by Minapolis vonce to see about it, ay tank," remarked Commissioner Olson. Fox spoke of the divine gift of nature in maturing brains to grasp the problem inspired in Scripture, where it speaks of a house not built with hands. "This, gentlemen, is the thought that inspired me as I worked out this beautiful plan, which, if you adopt, will be to you and your county a thing of beauty and a joy forever. And gentlemen, though I know that no such low considerations would influence such models of propriety as I have found you to be, still in adopting my plan you will be doing a good turn for your political futures; for the voters of the county will say (and rightly), that commissioners who can get such a stately building as the one my plan shows, for the measly sum it will cost, deserve any office at the hands of the people that they may ask. Now, as to these other architects present here, while I do not wish to say anything about them, still it is my duty to brand them as thieves and robbers, and they are all A. P. A.'s." "Stop," said Commissioner McMurphy in a roar, "I would loike to see yez outside a minute," he added in a lower tone. The commissioner then took Fox outside, but being near the door I heard the following conversation:

McMurphy: "You son-of-a-gun, you put your foot in it that time. The Englishman, the two Dutchmin, and the Swade are all A. P. A.'s."

Fox: "Oh, well, I'll fix that all right. D—— fools, ain't they? Let's go back."

Returning, Fox began: "Gentlemen, I said that the other architects were all A. P. A.'s, and so they are, tho' they do not belong to that noble society. We who are really architects and not merely draughtsmen, call one who cannot create a noble design such as mine, 'A Poor Architect,' and abbreviate it to the letters 'A. P. A.' I don't like it very well to have them called after the name of our society, for I am a member." "You're a liar," McMurphy interrupted, in a stage whisper, with a knowing wink at me. "I want the plans from your hands," continued Fox, "not that I care for the price, but because I know you gentlemen appreciate the efforts of an honest man in producing a work of art. These other architects are blaguards and none of them are eligible to the A. P. A. They have all been blackballed. If the local lodge met this week I would be pleased to stay over and attend, were it not that I have sickness in my family."

The next architect selected to explain his plan was my friend Morton, and he was a dandy. His plan was a pen and ink drawing. He began: "Gentlemen, your of-

fice is one of great responsibility. You are of the most honorable gentlemen in the state, selected for your particular fitness for this work. The people do not appreciate the value of your honorable self-denial, and it is a sin and a shame that you are called in here to work for the paltry sum of $5.00 per day. There are but five of you gentlemen. I propose if I get this plan to prevent you being robbed of your just deserts, and I will make each of you a present of $20.00. Now, for my plan; it speaks for itself, and its classic lines lie in modest grace like your beautiful daughters in full dress costume. Note the light and shade as it plays upon the beautiful columns and around the magnificent dome. 'Tis suggestive of the light and shadow of every day life, of joy and sorrow, but to be crowned at last with a beautiful dome of dazzling white. Mark the beautiful floors, with the octagonal, non-reversible, double gomople, quarter-sawed, non-combative, self-combustive ceiling. This court house, gentlemen, is twice as large as any of the others, and can be built for half the price——"

"How vos dot?" inquired Commissioner Schweitzer.

"Simply because all the other architects are scoundrels and liars," Morton resumed, unabashed. "I want this plan upon its elegance and my honesty. In the hands of any of these other architects, they will steal everything the county owns but its good name; and they would take that, but everyone that knows them would see at once that it was borrowed plumage."

Commissioner Schweitzer then inquired: "Pat, vos not dot building painted black, alreddy?" "It is," exclaimed McMurphy, "and it's no pirate house we want, Morton, be-gorry."

Chairman Piepel broke in: "Dot man vos a goot singer, und I votes mit him. He sings 'Nearer, My God, to Thee,' pretty much splendid all righd."

McMurphy broke in: "Morton's building is painted black, bedad, and that don't go down. It has the appearance of a Berkshire pig intoirely, and o'i don't give a dom for his singing. It's not singing masses for the dead we are."

"That blawsted bloody plan his no good," exclaimed Commissioner Hawkins.

Smith was next admitted to display his plan. "Gentlemen," he began, "you see my plans before you. I claim to be an honest man, and the building is a fireproof structure. The other architects are so hardened in sin that they have no fear of fire. They go on in the same old way of constructing buildings without any of the modern improvements, not even a fire-escape. Three of these architects have been brought before the police court of our city for stealing bicycles and bribing voters, and the other two have been in court on a charge of stealing horses, one from a Lutheran pastor and one from a Catholic priest. This fireproof material specified in my plan has been discovered but two weeks. This terra cotta arch that I show you was invented by my father, who is architect to the king in the old country. He has sent this patent to me with the privilege of letting the first person in this country to use it, get it for nothing. I make you the offer, gentlemen, and it will cost you nothing if you use my plan. The expense to anyone else will be $250.00. If you do not care to use it, and I get the job, then there will be $250 to divide among the five commissioners."

"H'is that the way the bloody thing h'is going to look?" said Commissioner Hawkins, "and there h'is not a blooming drop h'of paint on it." "I vos in favor of dot myself, alreddy," said Commissioner Schweitzer, "und we can paint id to suit ourselves."

Architect Knowitall is given the floor, and begins: "I have been in Europe, I have studied in France, I came from Revolutionary stock, I have blue blood in my veins, and I know it all. I am as much superior to these others, who call themselves architects, as a thoroughbred horse is to a sway-backed, wind-broken, spavined nag. It is useless for me to explain these plans to you, as it takes a special training to appreciate them, and that is something which neither you nor the others have. You have not made any such pretense, and that is more than can be said for these others. I feel myself disgraced to be in such company as these thieves, robbers and deadbeats. These other architects don't know the first principles of construction or good manners, and it is your duty to the citizens of this county and to yourselves to take my plan, simply on my say-so. That's all, gentlemen."

"Was it a plan yez was tellin' us about, or was it a political speech yez was makin'?" inquired Commissioner McMurphy.

Architect Slick was next invited to tell of his plans. "I appreciate the fact that these scoundrels of picture-makers have been before you with highly colored plans that you could not understand, that I could not understand, and that they could not understand themselves. I have come before you with a plain piece of brown paper and a red pencil with which I have made a ground plan of your proposed building. Note the different rooms and see the arrangements, also note the convenience of the exit at the back of the building. Look at the vaults which I have constructed for you, and observe the ventilation of the same. Don't you like it? Now, gentlemen, I make this offer. Get a price from all the other architects of the amount they will do the work for, and if any of them beats my price I will donate this ground plan to the commissioners. If they don't, then you are to have the difference between my bid and the next lowest to divide among yourselves. These rascals are simply the worst that ever struck this town. When I make the elevations I propose to put the British lion on the top of the front gable, flanked on one side by the German eagle and on the other side by the coat-of-arms of Norway. On the top of the dome I propose to place the flag of Grand Old Ireland, and on the low gable at the back, the stars and stripes, emblematic that you gentlemen are the custodians of the country, Yankee Doodle to the contrary notwithstanding." The entire board exclaimed with one voice, though with different brogues: "That suits us to a dot."

"Call in dose oder architects, Pat," said the chairman, "und tell 'dem to say how much for dey vill do dis yob like Mr. Slick has said."

McMurphy announced: "Mr. Chairman, they ain't outside bedad."

Commissioner Olson at once dispatched a messenger with these instructions, "Run down to de depot and see if them architedt fallers have stole my new self-binder."

The architects were finally routed out of the hotel, where they had been increasing their bar bills, and none of them had a self-binder concealed about him. Commissioner McMurphy addressed them thus: "Gentlemen, the board have dicoided that aich wan of yer plans is better than the other fellers' and each wan of youse must come before the board all together separately and till the chairman fair and square how much youse ax for thim plans."

All presented bids. Slick's was the lowest, at $150.00, and Fox's next at $600.00. This meant $450.00 to be divided between the five commissioners. This threw them into exceedingly good humor, and the announcement was made that Slick was selected architect for the court house, but the plans were not exhibited to the other architects nor the price made known.

All the other architects promptly came up and cordially shook hands with Slick. Each told him confidentially that, outside of himself, his preference was for him to get the job. Slick then set them up for the architects and the commissioners at the hotel bar.

The other architects then paid their bills at the hotel, but being short of ready change they gave their checks in payment. I learned later that the landlord of the hotel was down three days later, hunting five prominent city architects whose checks had been returned, marked "No funds," or "Account overdrawn."

NOTE—We venture to say Mr. Slick, who proved himself adroit enough with the committee, will be perfectly competent to equally look out for his own interests when it comes to letting contracts on the construction work, and material to be used in the building.

The selection of plans because they are offered cheap, is not always cheapest in the end, nor is this always true with those offering to do the construction work the lowest. The man should be selected whose ability and reputation are unquestionable and he should be paid well for his work, then he can feel free to give his undivided attention to the problem, thereby making it a monument to his skill, industry and ability, as well as to the good judgment of the public.

COURSE IN FIRE PROTECTION.

Armour Institute, Chicago, has announced, beginning with September, the first course in fire protection ever established. This will be in connection with underwriters' laboratories. The object of this training will be to decrease the enormous fire loss of this country, aggregating $150,000,000 a year, and the expenditure of $200,000,000 more for the maintenance of fire departments. The expert fire protector will not only understand the insurance business, but must be a chemist, an electrician, an architect and a builder. The student will be taught every process of fire extinction.

THE PETRIFIED FORESTS OF ARIZONA.

We left the train at Holbrook, the county seat of Navajo county, for a visit to the great petrified forest —one of the most remarkable natural curiosities in the world. After a breakfast in the little upland town, our party, numbering 18 individuals, was loaded into five canvas covered wagons, commonly known as "prairie schooners," and set forth upon a ride of about 16 miles, to the rim of a great mesa, where the largest portion of the petrified forest has been laid bare. There are several other points in Navajo county where fossil trees are exposed, the nearest point to the railroad being some 8 or 10 miles fom Adamana, a station to the eastward from Holbrook. It is probably that most travelers visit this latter place because of its proximity to the railroads, but the greater extent of the Holbrook forest, as well as the richer and more diversified coloring of the fossil wood, makes this the more desirable point at which to study this marvel of Nature. Ascending the northeastern rim of the mesa, which is still capped with the sandstone in place, one has before him a vast depression of some 3,500 or 4,000 acres in extent, thickly strewn with the trunks of great silicified trees. These seem originally to have lain just below the capping stratum of sandstone. As the penetrating waterflow cut out the softer material underneath the sandstone, the trees and their rocky covering dropped into the valley-like depression that was produced. Around the rim of the valley many large tree trunks protrude from beneath the sandstone for several feet, entirely unspported at their free ends. These seem to have been originally a variety of conifer, or perhaps to have been related to the great redwoods, *sequoia sempervirens,* of California. They undoubtedly belong to the carboniferous age, and are a portion of that vast forest which once grew in this now treeless waste, and that went to form the great coal measures that underlie its surface. By some singular freak of Nature, instead of being preserved to feed the fires of man, a stony semblance of these great forest giants is presented to feed his wonder. The texture and form of the dead trees are clearly discernible, every fiber of the wood transformed into gleaming agate, jaspar, sard, carnelian or chalcedony. The colors most prominent are reds and browns, with occasional blue and green tints interspersed with translucent, colorless chalcedony. The heart of some logs is a mass of sparkling crystals of quartz, occasionally showing amethystine tints. At one point these great logs lie so close together as to remind one of the yard of the saw-mill, where the logs have been rolled together to await the saw. They are usually broken into sections of not more than 8 or 10 feet in length, as squarely across the fiber as if separated by the woodman's cross-cut saw. Some have been discovered that measured 20 feet in diameter at their base, and at a break 100 feet from the base 10 feet in diameter. One that lies with all its sections continuously placed and in contact, I paced from end to end

130 paces—probably at least 360 feet. The smaller branches, if they were ever silicified, have been broken into tiny fragments that now strew the surface of the valley. All the centric layers of wood that mark the annual growth of the trees are clearly shown by the varying hues and tints of the stone, and offer a most interesting study to the lithologist, as well as a never-ending source of surprise and wonder to the mere sight-seer.

The Petrified Forest is indeed one of the wonders of this Arizona wonderland, and must attract increasing numbers of visitors as it becomes more widely known. It is now one of the reservations of the national government, and is protected from the vandalism that might otherwise, in time, mar some of its singular beauty.

Standing amid these mute memorials of a long-gone past, a mood of reverie is easily induced. What cycles of change and what tremendous cataclysms have these stony forms survived! What sort of birds once rested in the branches that these great trees upbore? What beasts lurked in the shadows that were cast by their leafage? Fossils of animals of unknown and extinct species are found scattered about among these immense rocky trunks, in chemical composition now pure dolomite or magnesian limestone. Certain it is that before the subsidence of the land which bore these forests there was abundant life of some sort here that was buried beneath the mrushing waters as the land slowly sank and the great trees toppled to their overthrow. Through long ages the ocean detritus was dropped through yielding waters, grain by grain, until the great sandstone stratum was piled upon these fallen monarchs of the primeval forest. Then followed an age of slow uplifting that drained off the waters, and then the erosion by stream and storm that at last restored these buried giants to the light of day. But what mind is able to grasp this appalling procession of the ages?—Alfred Tree in Springfield Republican.

NORCROSS COMPANY SOLVENT.

The reorganization of the Norcross Bros. Company, which recently assigned with liabilities of $2,000,000, was last month assented to by Judge Brown after a hearing in the United States Circuit Court at Boston, the assets to be transferred from the receivers to the reorganization committee. The discharge of the receivership was consented to by all the creditors and the receivers. The receivers filed a petition for authority to assign the Harvard medical school contract, which, as receivers, they had taken to the Norcross Bros. Company. That petition also was granted, as it has the assent of Harvard College and the Norcross Bros. Company. These proceedings practically close the receivership, and the company is adjudged solvent. It is considered a most remarkable settlement of so large an interest. Judge Brown took occasion to compliment counsel on the rapidity and accuracy with which they had straightened out such a vast and complicated affair.

EXPORTING AMERICAN FIRE BRICK.

A Louisville, Ky., fire brick concern has just closed a contract for twenty-five car loads of fire brick to be sent to Spain for use in a large factory in course of construction at Madrid. The contract was won over bidders in Germany, England and others in the United States. The quality of brick made in Louisville and vicinity has always been acknowledged to be superior to that made in any other section of the country, but previously in cases of foreign demand England and Germany had always held their own. However, the field is now open to invasion, because after a thorough investigation the Spanish concern decided to take the Louisville brick. The shipment will be ready in about five weeks, and will be sent via New York to Cadiz and thence to Madrid.

"This is the first contract for Louisville brick ever received from a foreign port, and brick manufacturers are much gratified that the fame of the clay in that section is being so widely advertised. The contract is not only very large, but the advertisement it gives Louisville as a fire brick center will be worth a great deal."

A NEW BUILDING MATERIAL.

A new building material which promises much for the future is called Uralite. It is the invention of a Russian artillery officer and chemist named Imschentezky. Uralite is composed of asbestos fiber, with a proper proportion of silicate, bicarbonate of soda and chalk, and is absolutely fireproof. In a soft form a sheet of uralite is like an asbestos board; when hard it resembles finely sawn stone and has a metallic ring. Besides being a nonconductor of heat and electricity, it is practically waterproof (and may be made entirely so by paint), and it is not affected by either atmospheric influences or by the acids contained in smoke, which rapidly destroy galvanized iron. It can be cut by the usual carpenter's or woodworker's tools; it can be veneered to form paneling for walls or partitions; it can be painted, grained, polished and glued together like wood; it is not affected when exposed to moisture or great changes of temperature, and it can be given any desired color either during the process of manufacture or afterward.

THE ARCHITECT AND HIS FEES.

Andrew Carnegie's palace on the Highlands of Fifth avenue, New York, cost in the neighborhood of $3,000,000, it is said. Babb, Cook & Willard were the architects. It is the rule in America to charge a fee of 5 per cent for all architectural work, except when special arrangements are made; therefore Babb, Cook & Willard made $150,000 out of the Carnegie home. In Paris there is a sliding scale for architects. Buildings costing more than $150,000 will pay 4 per cent, those between $125,000 and $150,000 4 1-2 per cent, between $75,000 and $125,000 5 per cent, between $40,000 and $75,000 6 per cent. It is believed by leading architects that such a scale should be adopted in this country.

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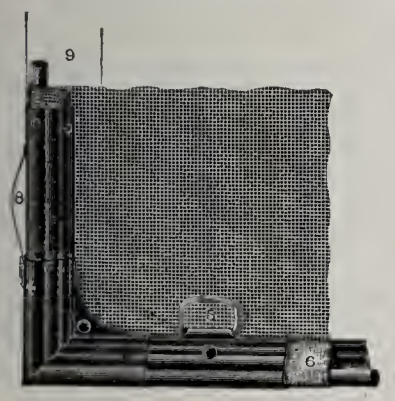

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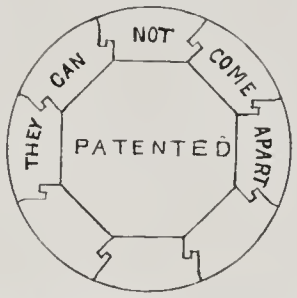

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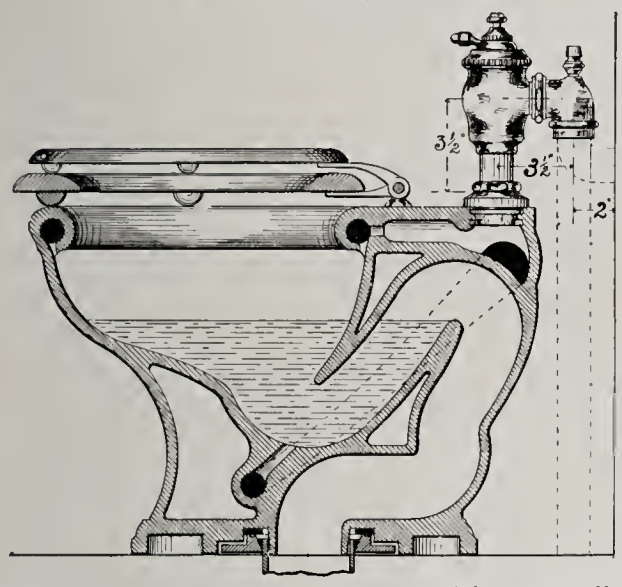

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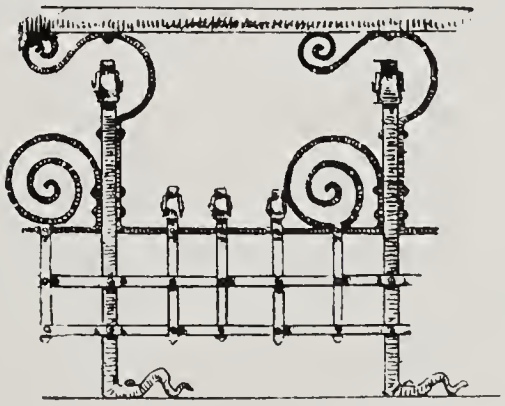

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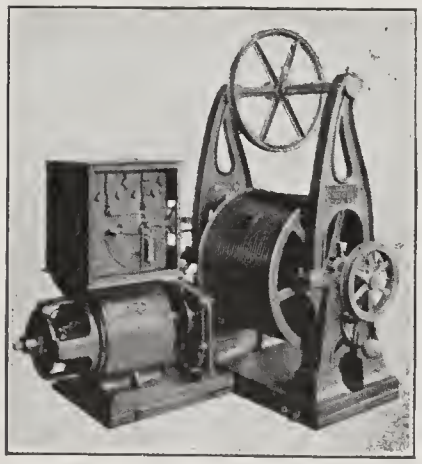

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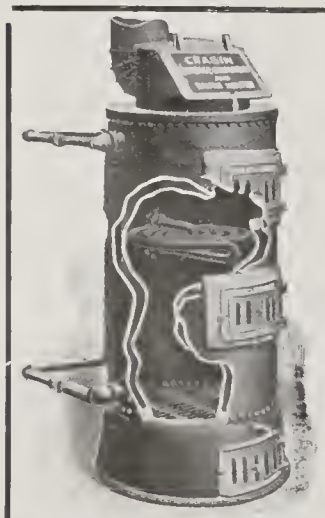

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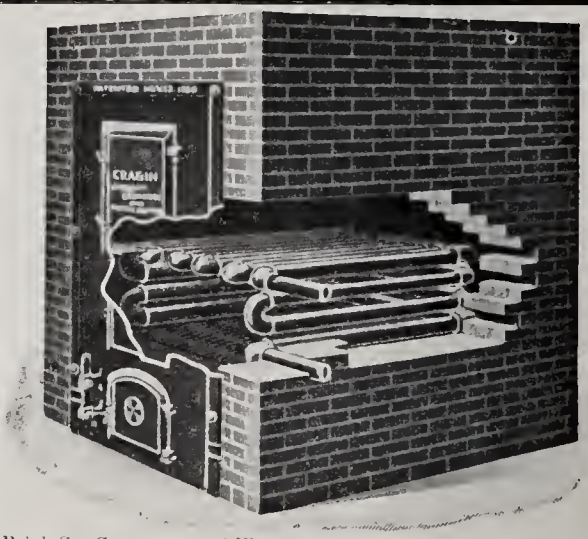

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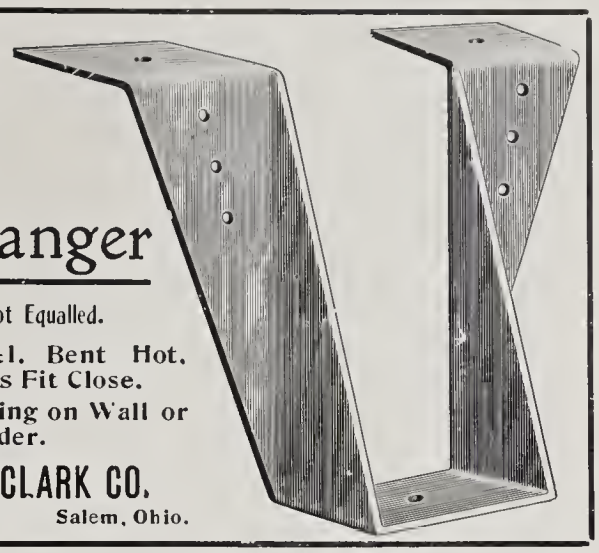

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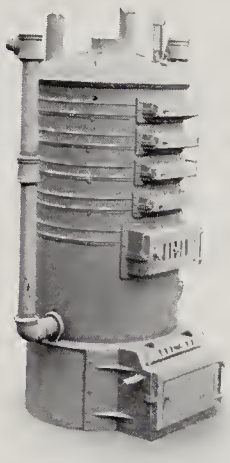

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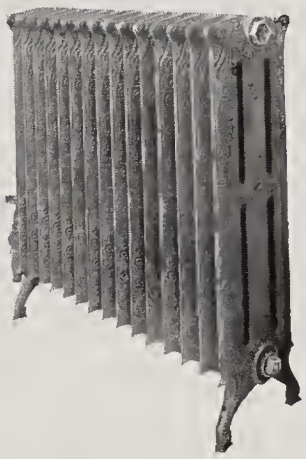

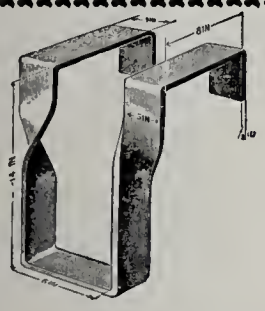

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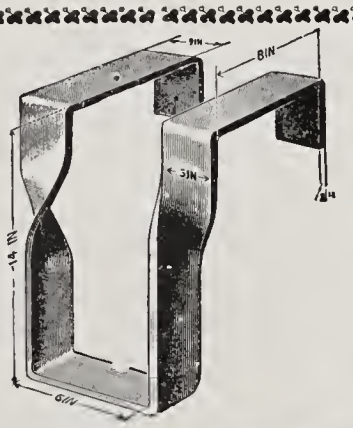

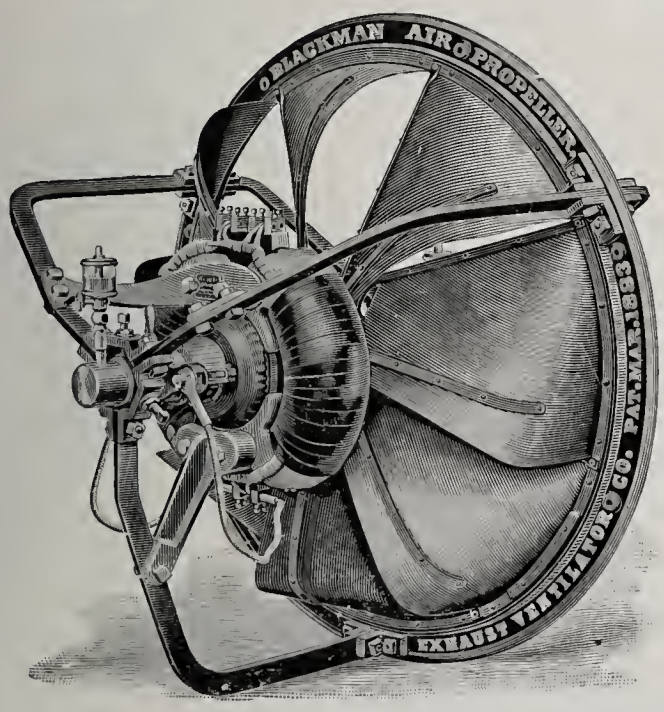

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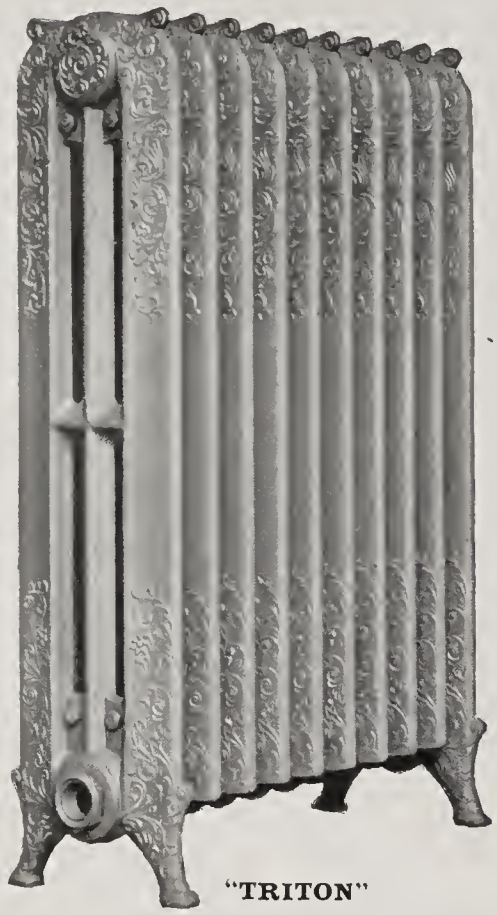
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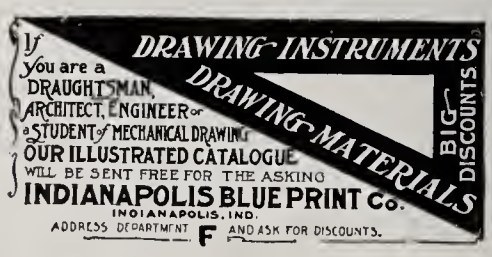

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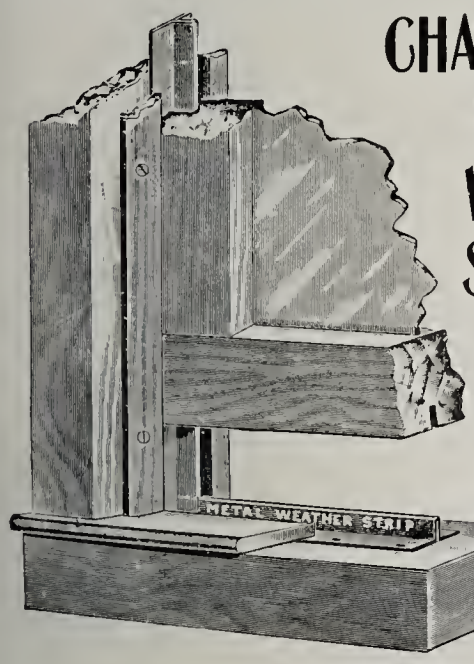

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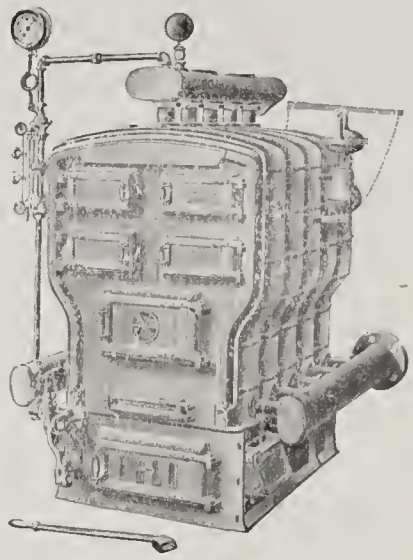

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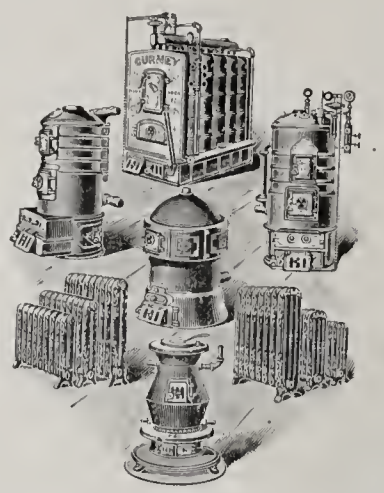

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You've got to keep on walking
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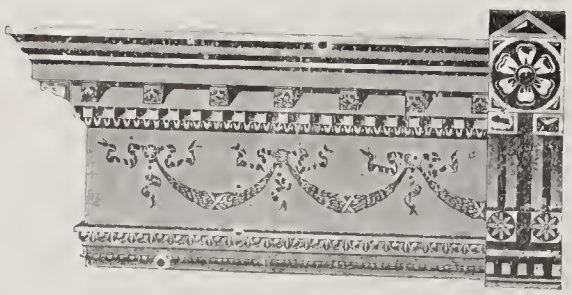

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The beautiful litho-water color booklets sent out by the well known house of Samuel Cabot, of Boston, Mass., are certainly works of the highest art. The specimen recently received by the Western Architect is away ahead of anything that has ever entered this office. It is a booklet that ought to be in the hands of everyone intending to build.

By a unique and clever way in which the leaves are cut, one can present pictures of a house stained in almost every conceivable shade, and, to our idea, they all blend and harmonize in a very pleasing manner. Hard to please, indeed, will be he who fails to find something in the arrangement of colors that are shown in this work, that is not satisfactory to all who are interested.

STEEL CEILINGS AND WALLS, Prevent Destruction By Fire.

The attention of insurance men, owners of buildings and fire fighters throughout the state has recently been called in an almost startlingly convincing way to the efficacy of steel ceilings and side walls as preventatives of disastrous conflagrations.

It seems to be unanimously agreed that the recent fires in the Merchants hotel and in the buildings of the Smith & Farwell Co. and the St. Paul Show Case Company would, beyond doubt, have resulted in disastrous loss of life and money but for the protection afforded by the steel plates which in each case served to confine the fires within narrow limits, making them easy to subdue.

That the intense fire which threatened to consume the Merchants hotel in November was checked with slight damage was a nine days' wonder until it developed that the rooms in which the conflagration raged were protected both as to ceilings and side walls by metal plates.

The Smith & Farwell fire early in December started in a pile of excelsior in the basement. It was what is known as a "quick" fire, and "jumped" almost instantly to the first floor, where it spread rapidly, but stopped short of the upper floors —barred by the steel ceiling of the first floor.

Possibly the most instructive example of all was that afforded by the fire which occurred at night early this month in the large factory of the St. Paul Show Case Company on the West Side. In this case so fierce was the heat that stock and machinery were practically all destroyed: the building was saved from total destruction, in the opinion of those qualified to judge, solely by the metal plates on the ceiling and walls.

A. K. Pruden, president of the St. Paul Roofing, Cornice & Ornament Company, who manufactured the metal plates in all the buildings alluded to, said to the Pioneer Press yesterday: "We could not have asked for a more complete or exhaustive demonstration of the merits of our material. We have no doubt, nor have the owners of these buildings any doubt, that their buildings would have suffered total destruction had it not been for the protection afforded by the plates. The plates are invaluable as fire preventers, but they are more than that, they are artistically finished when used in ceilings and present an appearance which compares favorably with any decorated ceiling made. Yes, our trade in plates is growing rapidly, and why shouldn't it? They have every requisite for success and their popularity is only a question of public knowledge of their merits. They make 'old-style' buildings almost absolutely fire-proof as far as danger is concerned, and their cost is a mere trifle compared with their practical utility and the actual cash and trouble saved by their use.—St. Paul Pioneer Press.

BURROWES RUSTLESS FLY SCREENS.

At one time a window screen would be almost fully described as "four sticks of wood covered with netting." This description gives but a very limited idea of the improved screen of today, with its substantial, elegantly finished frames, with convenient handles, and covered with fine, evenly woven netting of silken appearance, which neither obstructs the view nor retards ventilation.

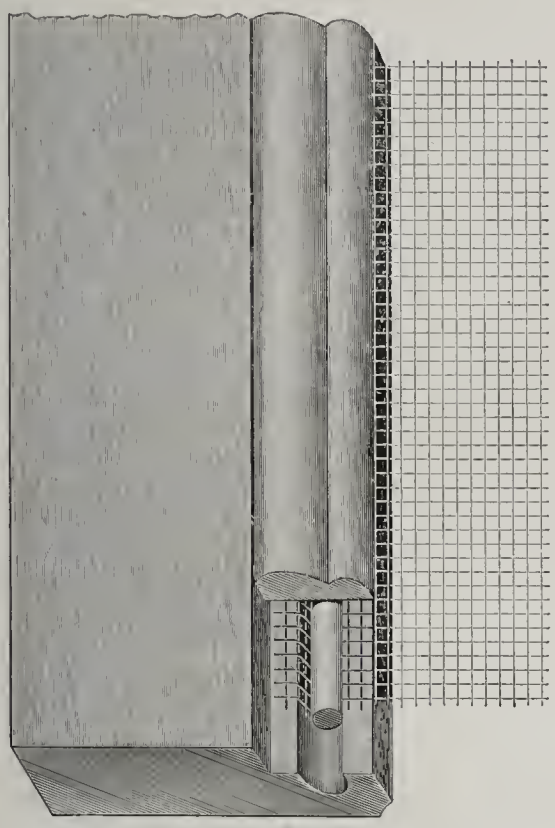
The wire screens manufactured by The E. T. Burrowes Co. of Portland, Me., are made to fit and match the house on which they are to be used. Measurements are taken of the windows and outside doorways after the house is built. The screens are attached to the windows by improved devices. One of these is a particularly ingenious device called the "New Century," which consists of a metal shoe at the end of an adjusting screw, whereby the screen may be regulated to slide just right, the screen being made to cover one sash, and may be used either for the upper or lower sash as desired. The screen will slide as easily in wet weather as in dry.

THIS HOUSE IS PROVIDED WITH BURROWES RUSTLESS SCREENS

The Burrowes Rustless Screens are covered with Copbronze Netting, which will not rust and does not require to be painted. They have been using Copbronze more than fifteen years and in some of the most trying exposures, with absolute success—a rustless netting on a rustless frame.

The method of fastening wire cloth on the frame is of the first importance, and is the weakest part of the ordinary screen. Tacks driven ten or twelve inches apart is the usual method of wiring, and the results are soon apparent in the loose, baggy netting easily parted from the frame. When tacks are driven closely, they hold only the few strands of wire which they cover, and these few strands rust out quickest under the tack head. Such products are not profitable to the user.

Some of the advantages of the Burrowes patented method of fastening the wire cloth to the frame are illustrated in this cut.



Every strand of the netting is securely fastened, being crimped in a groove, confined by the lock-strip, and all neatly covered with a molding. The netting will remain taut and secure for years. Screen Doors wired in this way with a heavy grade of wire cloth will prove durable.

The Burrowes Screen Company have been making screens nearly thirty years; they have built the largest screen factory in the world and have recently added another large building, nearly doubling their space. They now have five substantial brick buildings of five or six stories each.

The Burrowes salesmen visit nearly every city and town in the United States, and they have offices in the largest cities. When writing to the Company, it is only necessary to state the number of windows and door-screens required, and they will send catalogues and arrange to give cost. Burrowes pays the freight.

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While for years their product has generally been used for all the important and leading building enterprises in the Northwest, it was hardly expected that, for several years to come and with the most enterprising business methods, their business would be extended so far to the east and south as the records prove them to have gone.

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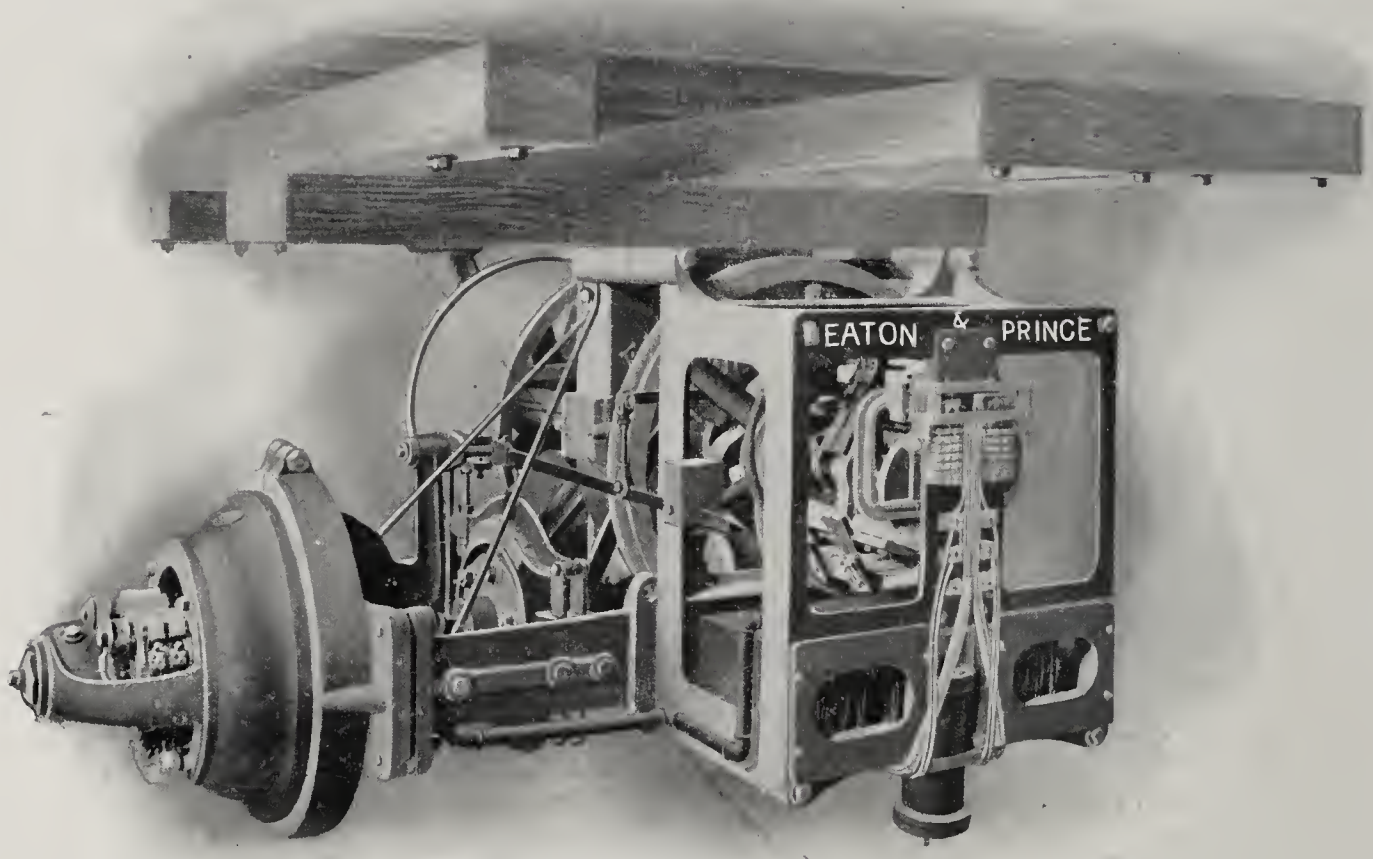
A great many of these machines have been installed in most gratifying results. The Company takes great pleasure in showing anyone these elevators in operation, and their new prominent buildings throughout the conntry and with the general catalogue giving further illustrated details will be mailed upon request.

Eminent scientists have been puzzling over the "emanations" from radium until one of them has come to the verge of indorsing the quest of the old alchemists—the transmutation of metals. He has bottled these emanations—which are made at no cost of weight by the radium—and in time discovered that they convert themselves into helium and gradually disappear.



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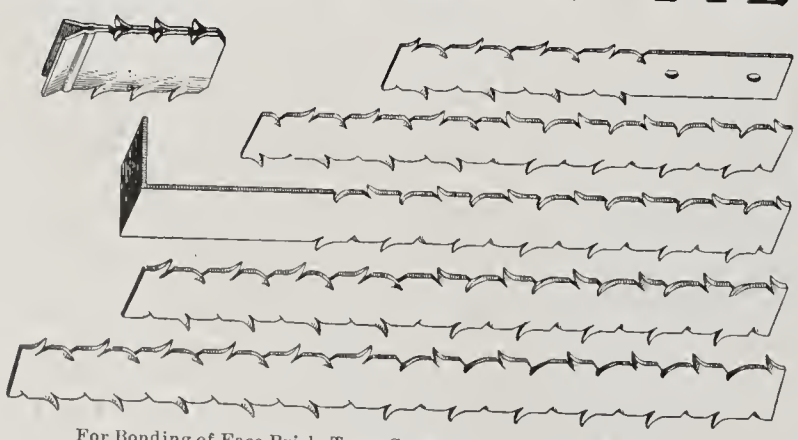

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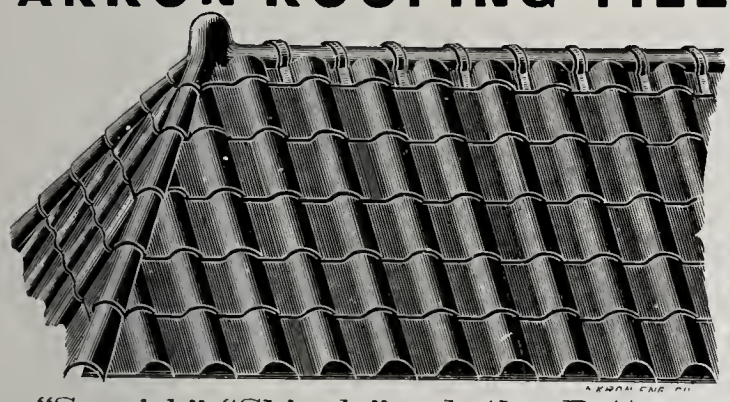

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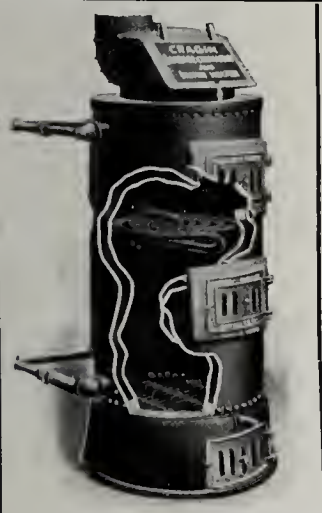

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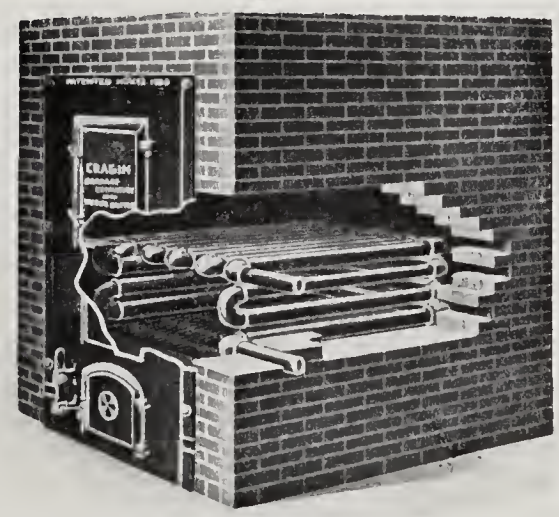

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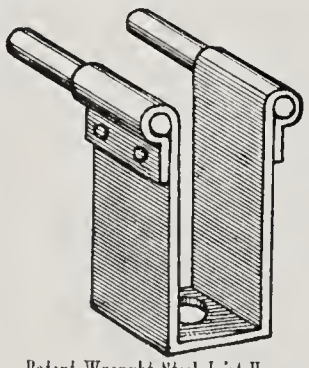

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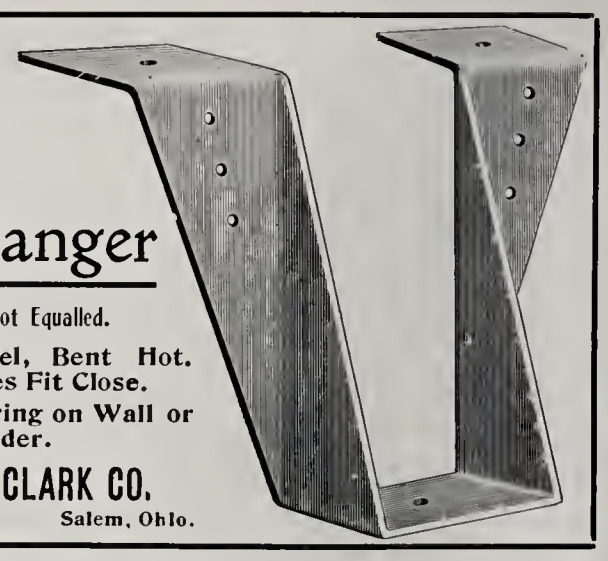

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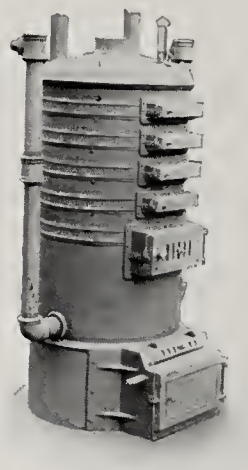

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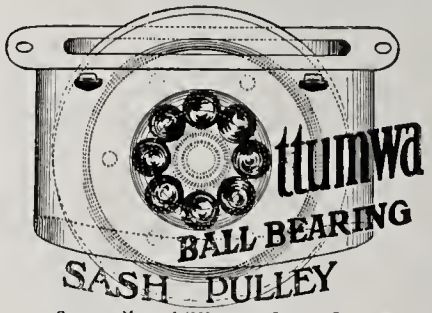

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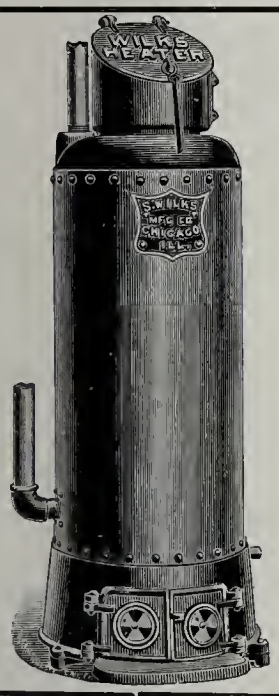

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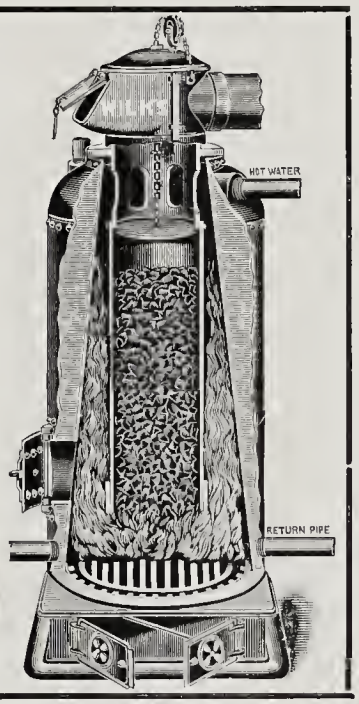

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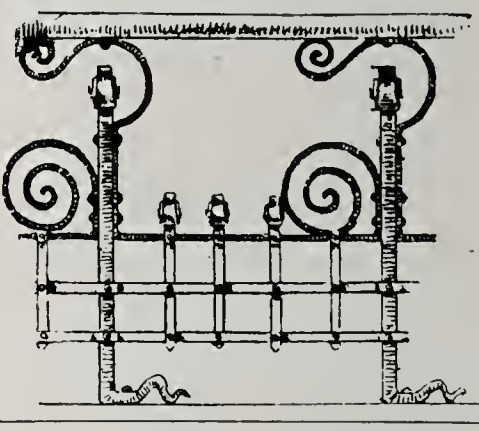

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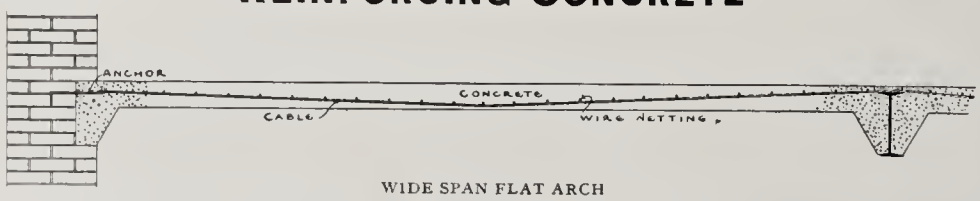

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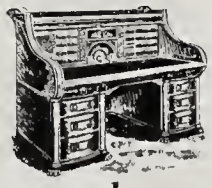

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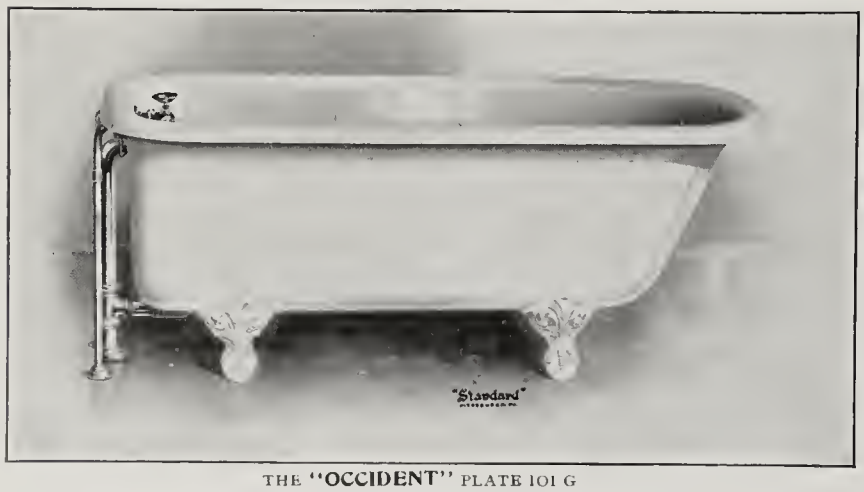

THE "OCCIDENT" PLATE 101 G

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DEVOTED TO ARCHITECTURE AND ALLIED ARTS

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MACHINE window glass is reaching the market and elicits most contradictory reports. Some lots are reported as very straight and clear, but thin; while others are said to be thin and anything but straight. A very high authority in the glass trade expresses entire confidence in the ultimate success of the process, and says that the thinness is now being remedied.

MEETINGS of the Twin City Architectural Club, which have of necessity been largely devoted to organization thus far, have been very successful in numbers attending and in the enthusiasm shown by members. The list of officers is given in another column. A regular meeting will be held on the 19th, at the rooms of the Minneapolis Building Exchange in the Kasota Block, at which the amended By-Laws will be presented for final adoption. The club will then be addressed by Mr. A. B. Chamberlain on the subject of theater construction. A cordial invitation is extended to all interested in the work, whether members or not, as the club especially desires at that time to present its plan of organization and work to architects and others interested who have not had an opportunity to become acquainted with the aims and purposes of the club.

THE drawings and designs of the late Harvey Ellis, made during the extended period of his residence in Missouri and Minnesota, came just a little short of influencing western work more strongly than that of any other designer, before or since his time. Had he been a little less brilliant and original he would have been more apt to work one vein until he had produced something that should stand as characteristic. Or had circumstances not conspired to prevent him from carrying out his designs under his own name, it is difficult to believe that a man of his genius, training and wide information might not have done things equally brilliant and more logical, more architectural. His West Point training, while of little value in equipping him with the traditions of the craft, might well have supplied the feeling for the rational limitations of projects, while his almost redundant artistic equipment could be drawn on for any requirement. No one else could do such striking things and yet avoid the bizarre

IN a prospectus of a third edition of the Directory of American Cement Industries it is stated that the list of cement manufacturers in the second edition reached 206, and that the forthcoming edition will extend the list fully 50 per cent. It is also stated that a great increase in importation of foreign cements took place last year. People who have kept an eye out for the cement situation have been predicting a similar showing for a year past, and, furthermore, that the time is not far off when only the thoroughly modern plant can stay in the game. Thus far demand has kept well abreast of supply. But there are things that threaten the industry apart from features common to the business world. Not only is it easy for a contractor to cheat in concrete work if he wants to, but if he is not so inclined he cannot get good work without considerable effort unless he be fortunate enough to get an exceptional lot of workmen. Concrete work is not yet so well understood by the majority of people who take to it, but that many a mishap comes through nothing worse than ignorance. Frequent reference has been made in this department to the loss of trade sure to follow the ventures of the great designers of new and impossible concrete schemes, the ultimate fate of which is pretty sure to give the material a bad name. Then there is the maker of bad cement—nothing is being done to effectively quell him, yet so long as his wares are allowed at large in the market, so long will the trade at large suffer for his sins and shortcomings.

Reports of the late notable dinner of flying machine men and their friends indicate that pretty good things must have been served. No such prophecies were ever collected in a like space as in the report of the gathering. Perhaps the least startling of these was the prediction that the flying machine will soon be the cheapest and commonest way of going about. Yet when it came to the only one who had ever flown, it is noticeable that he did not prophesy.

In a curious codicil to a curious will, the late Herbert Spencer gives his main reasons for opposing the metric system and provides that if its adoption by parliament is again agitated, his pamphlet on the subject shall be reprinted and distributed among the lords and commons. The inch and the foot have many partisans yet, and their cause is strengthened and justified by the great respect in which the dozen is held, so that they are liable to die hard. Counting having been originally learned on the fingers—and thumbs—it is the misfortune of the race that the end of the arms branch as they do, for no other small number is so awkward to divide as is ten. If we could only hold on to the inch and foot, and use two more numerals (digits)—a system in which the least number to be shown by three figures would equal our present 144—then we would have a change worth while. We might then keep our inch and foot, and make over larger denominations and our weights and measures a bit, and the laugh would be on the Latins. They don't presume to throw out the dozen from calculation of time as it is.

The Coroner's jury called to investigate the Iroquois Theater disaster seem to have begun at the top and shied a missile at every grade of official on the way down. They spent a good deal of energy of a somewhat hysterical sort upon the mayor, declaring that "he has shown a lamentable lack of force in his effort to shirk responsibility." After much more hardly coherent comment on the mayor, they recommended that he, with the building commissioner, an inspector, the fire marshal, the theater fireman, the electric light operator, the stage carpenter and the president and general manager of the Iroquois company be held to the grand jury. While there is no question that this theater management was lax in provisions for safety, it is not to be lightly assumed that they were so very exceptional among Chicago theater managers, or those of nearly any other large city. How the charge of criminal negligence can be made to attach to people outside of the management is also difficult to see. An exceptional building inspector might, by an occasional prosecution, do much to help toward a better observance of building regulations, and a better observance will everywhere be required for a time; but, if followed by a considerable period of immunity, the next great holocaust will find things just as lax as now. Human nature will not be changed by this calamity. The people who go to theaters will always go to be amused—not to be safe. They will not demand less than is spectacular from the mechanical side of the show, nor will they go through fire drills as school children do against a time of need. Public officials will continue to be selected from an easy-going public. Greatly improved building codes will, however, succeed the present regulations, and there will be no copying of the famous clause in the present Minneapolis code "providing that these regulations shall not be construed as applying to existing buildings or to those in course of construction." If new codes were to provide for special inspectors, whose duties shall be to inspect, report on and enforce regulations pertaining to audience rooms, the shifting of responsibility would be largely removed, which would perhaps do more for permanence of reform than any other one thing.

A St Paul gentleman had an experience the other day that may have led to views on the subject of home industries. The house hot water heater—luckily during the January thaw—gave out by the cracking of a cast iron section. It was found that the broken part could only be replaced by sending to the maker in New England, and not daring to take chances on the delay he ordered a new heater, which was installed just in time for the "cold snap." The bill was a little over $300.00. St. Paul makers are producing what are quite likely better heaters than the one that failed, and had the mishap occurred to a heater of local make, it could very likely have been repaired at one-fifth the expense.

The plethoric condition of the general coffers has been so much vaunted of late that sessions of congress become the Mecca of all manner of pass-the-hat experts. Public buildings could be had for almost any place were it not that loans to expositions are coming to be so common as almost to take turns with the appropriations for public buildings. These expenditures are easier to defend than many other classes. Yet they depend for their existence upon successful begging. But when we come to think of the proposal that the general government shall come to the rescue of the California big trees, it will be admitted that the begging limit has been reached. The government has been doing much of late years for the mountain states in the way of saving them from themselves—laying out forest reserves in suitable portions of the public lands and patrolling these so as to prevent their destruction by the precious populace. But now comes California, which owes more to the advertising she has had from the big trees than to all else she has, trying to get the general government to save these trees from the lumberman. Not only that, but she asks sentimental people of other states to help her get an appropriation for the purpose. It is to be hoped the answer of congress to California will be, "If you don't think enough of those trees to preserve them, pray leave a few stumps as a comment on your civic pride."

Cities are becoming a trifle ashamed of begging libraries, and the offer of a kerosene king to chip in and help a state university has raised debate, but there is nothing which we may not ask of the general government. It was different when New York parked Niagara and when New York and New Jersey set about to preserve the Palisades.

THE good promises that have been made in the name of what may yet christen itself the new science are not followed very closely by accomplishment. The liquid air man was to build a quart of it, and that quart was to generate a gallon or two without outside help, and that would make the operation of lifting oneself by the boot straps look cheap. The radium people tell about "emanations" that come—without loss to the source—from their metal, and in the course of some hours or days—they prove it by the spectroscope—become another metal. Why are they not busy turning lead into gold? Then to think how time has sped since the kerosene college professor found that procreation was only a question of chemicals, and no practical use has been made of the discovery.

WHEN, in a late issue of this journal, we took what seemed likely to prove and did prove to be efficient means to call the attention of those interested to very objectionable features of the cement business—especially the relation of the present systems of official inspection to building interests—we had no idea of exciting any prejudice against natural cements; and, lest there be anything in the fears of some makers of natural cements as to the effects of the article referred to, we wish to state here that there are brands of natural cement on this market in which we have full confidence, because we believe these cements are made by men fully alive to the value of good reputation in this business, and who intend to stay in the game. Furthermore, we have no sympathy with the position of the architect or engineer who cannot, or will not, recognize the suitability of natural cements for purposes within their range. The man who proposes to place a structure upon a soil that will safely support but four tons per square foot, and begins his footings with a Portland cement concrete that may be safely loaded to sixteen tons per square foot, when he can use a cheaper natural cement concrete that may be safely loaded to eight or ten tons per square foot, does not appeal to us as much of a designer. The only justification this man may have for such a course is proof of greater reliability of one class of cements over the other. This journal is working for the adoption of a system that shall give fair assurance of the reliability of all cements placed on the market. As it is now, building interests may be reasonably sure that they are offered all the cements that city authorities reject for their own use.

DISCIPLES of Henry George are more persistent in propoganda than any other group of believers to be met with. Whatever the merits of their main contention, they are doing much to bring to light facts that are likely to call for the most serious consideration of economists in the near future. The perfecting of machinery, of means of intercourse over great distances, and the manipulating of capitalization that have been so noticeable within the past few years, have led to most spectacular business combines, many of them monopolistic in their nature, and to attempts by workmen's unions to monopolize labor as well. These have so taken the attention of the thoughtful that the profound change in the land situation which has been proceeding meanwhile is lost sight of to a large extent. This change is so startling that it cannot fail to receive more attention in the near future. The rapid shifting of rural population to the cities of late has been noticed by all and has been variously accounted for, but when in this connection it is found that in England, for instance, farm laborers decreased in number some 25 per cent. in the period from 1891 to 1901, and that gamekeepers increased in almost exactly the same proportion, an element is introduced that will not add to the complacency of the student of events; certainly not of those who recall the prediction made by prominent economists not twenty-five years ago, that the new lands becoming available would soon so far eliminate landlordism that there would be nothing in agriculture for anyone but the tiller of the soil.

But the exhibit that has a more direct bearing on building interests is that of site values in cities. Most of us have expended so much sympathy upon good friends who have been gently but surely pushed off the earth—financially—in attempting to monopolize a part of it in the shape of city real estate, that we have been disposed to believe that real estate speculation was a form of sin followed promptly by its own punishment. Some of the figures are not calculated to support this view. A retail store in Chicago pays ground rent of a quarter of a million. It is not stated what conditions are attached to this, but usually these rents are with the tenant paying all taxes as well as making the improvements. This would indicate a market value for the site of four or five millions. The separate assessment of land and buildings is now completed in New York, and the value of all buildings is placed at a trifle less than one-fourth of the whole. Some of the items are of interest. The Fifth Avenue hotel and the Waldorf-Astoria each occupy land worth $4,000,000, the former building being assessed at $500,000 and the latter at $5,000,000. R. H. Macy & Co.'s building is assessed at $2,800,000 and the land at $3,500,000. The Herald building is assessed at $200,000 and the land at nine and one-half times as much. Only a few of the latest sky scrapers are valued at more than the land they occupy.

A similar system of assessments in Detroit shows less discrepancy between values of land and improvements, the lands being valued at only twice as much as buildings.

One need not know much about the general subject of taxation to reach the conviction that something in the nature of an enormous tax on building enterprise is but scantily concealed here. If a landless man, or group, essay to build a great office building, for instance, the owner of a favored site is able to take the major part of the net income of the enterprise for nothing more than permission to build on his land. Were this owner to found a college, or at least to endow a "chair" with his share of the proceeds, we would be taught that the landlord's share, being ultimately borne by the tenant anyway, does not detract from the share of the builders, or discourage building. By the same reasoning in a city which licenses saloons at $100 and proposes a change to $1,000, saloon keepers or brewers should not oppose the change on grounds of self-interest. But a western city once made this change in its license fees, and two-thirds of its saloons went out of business.

A DRAFTSMAN'S RECOLLECTION OF BOSTON.

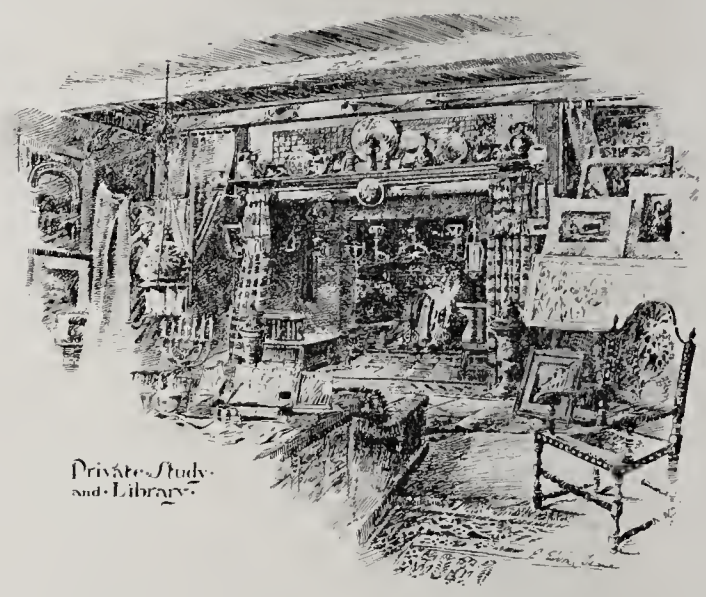
BY E. P. OVERMIRE.

It was with considerable trepidation that the writer servered the ties which bound him to Minneapolis and set out in the fall of 1887 for that Mecca of architectural students, Boston, where are located the Institute of Technology, Harvard University and so much that is mingled inseparably with the early and vital history of our beloved country. With the assistance of home friends who knew personally what lay ahead, I was enabled to select before starting a boarding place which proved eminently satisfactory, it being conveniently situated to the Back Bay, where are located Trinity Church, the Museum of Fine Arts, Public Library and the finer portion of the residence district. A letter of introduction to the firm of Andrews & Jaques opened their doors, and through their good offices the writer stepped at once into a position with Shepley, Rutan & Coolidge, who had but recently succeeded to the business of the great H. H. Richardson, whose name and works were on every tongue, and whose influence had been felt across our entire land. Naturally one could not but feel especially favored in getting so quickly and easily into an office where the environments and atmosphere were so thoroughly good, and, although it was some eight or ten miles from the city to this country office in Brookline, the trip was patiently made by some twelve or fifteen men twice a day, each feeling amply repaid with their experiences en route.

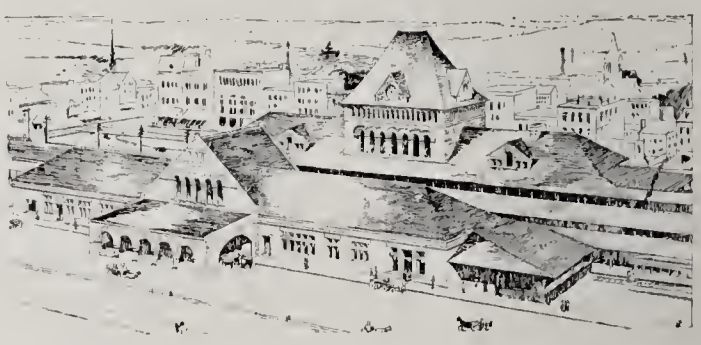
To one whose previous experience had been in the cooped-up offices of the noisy, dirty city, this change to the sweet smells and pleasant sights of the country was a constant delight and an inspiration to best endeavor. The sketch by Mr. Eldon Deane in an old number of the American Architect gives an excellent idea of this office and its environment; inasmuch as the old office has been torn down these sixteen years or more, this view may be of special interest to any who have heard of but have been denied the pleasure of seeing for themselves the unusually favorable surroundings in which we were so well pleased to work. The accompanying photo, taken by myself, shows the office force as it then existed. Several have gone the way of all flesh, several have achieved fame in the practice of architecture, some have turned to other vocations and some have retrograded; altogether

OFFICE FORCE, SHEPLEY, RUTAN & COOLIDGE, 1887.

the old photo is of considerable interest and value to those in the group. Having heard and seen so much of the work of H. H. Richardson, with so many evidences on all sides of his genius one could not but be inspired, and with free access to his superb library one could make the most of spare half-hours in familiarizing himself with the best kind of work, both at home and abroad.



Amongst others, this firm then had under way the Gratwick residence at Buffalo, the Howard Library at New Orleans, the great Leland Stanford University in California, the Nickerson House at Dedham, Mass., and the Boston and Albany railway stations at Springfield, Mass., many of which the writer was privileged to work upon, and several of which are illustrated herewith.



BOSTON & ALBANY RY. STATION, SPRINGFIELD, MASS.

While still with this firm, their offices were removed to Boston at Exchange street, near State street, where they occupied the entire upper story of a large, old building fitted up with working alcoves, fireproof library and private offices. Here they remained for several years until the erection of the tall Ames building, which was built from their designs, the upper floor of this building being arranged for their own use, and there they are to this day. This is on historic ground, within a stone's throw of the old State House and Faneuil Hall, the place of the first bloodshed of the Revolution, and many other important and interesting events in American history.

OLD STATE HOUSE. — AMES BUILDING.

Excepting a few months' trip home, the writer spent upwards of five years in Boston, gathering a large store of experience from such offices as Shepley, Rutan & Coolidge, McKim, Mead & White and Andrews, Jaques & Rantoul. Generally the noon hours were used to good purpose in visiting points of historic interest such as Faneuil Hall, the State House, the common, Back Bay district, Bunker Hill, Harvard College and the markets, docks, etc. Much heavy building was going forward during this time, which added further to the points of interest to be visited. Holidays were spent profitably visiting such suburbs as Cambridge, Brookline, Charlestown, Dorchester and Milton, Jamaica Plain, the Newtons and the old North End, which was of double interest, both historic and artistic. Here is located the old North Church, from whose spire Paul Revere hung the signal lights on that famous night, made memorable in verse by Longfellow. The greatest interest here, as elsewhere, was in the people, rather than in the buildings. No. 149

Salem street is pointed out as the house immortalized in "Solomon Levi," and the surroundings accord with the song. All this was in the days before the present "L" road and tunnels were thought out, hence the surface appearance is considerably changed from those days of sixteen years ago.

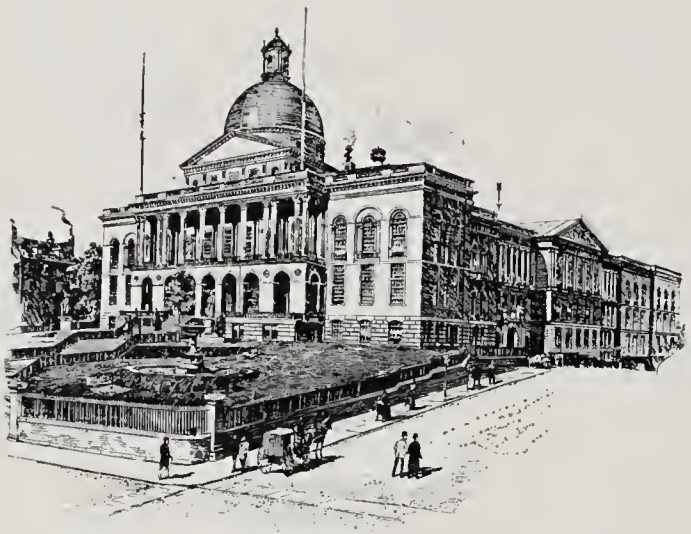
Beacon street was the Mecca of architects in those days, one of the principal shrines being at No. 6, where such people as C. Howard Walker, Chamberlin & Whidden, Andrews & Jaques, Longfellow and Alden & Harlow "hung out." This property is now covered by a tall modern skyscraper, and even the old Athenæum property adjacent, has gone the way of all such, moved further out into a new modern building, and yielded the place to modern improvements. At 53 Beacon street was the Boston office of McKim, Mead & White, where the Boston Public Library was designed and carried out.

In 1888 the Boston Architectural Club was formed, with headquarters hard by the old Music Hall, on Hamilton Place. Here transpired many interesting events which will never fade from the memory, including life and modelling classes, water color and pen and ink classes, etc., with such teachers as D. A. Gregg in the latter,

THE DRAFTING ROOM.

Dwight Blaney in water color and Blackall & Newton in design. At this time were published those fine works on the best colonial architecture, by Corner & Soderholtz and

by J. E. Chandler, all of whom belonged to the club. Lectures by leading lights, exhibitions of work of the members, and semi-occasionally the B. A. C. minstrels held forth to the great delight of all those fortunate enough to be admitted, and amongst other treasures the writer cherishes the program of the first of these minstrel shows. The club has quieted down into quite a decorous body now, but a safety-valve is provided in the "P. D's," abbreviation for "Poor draftsmen," which refers to their financial condition rather than to their artistic abilities. They meet regularly on Saturday nights in a room of their own for self-improvement and jollity, free from rules and order, a law unto themselves. Having among their number skilled musicians and every member being an artist in some special line, they are never at a loss for entertainment.



NEW STATE HOUSE.

The trips to Newport and Old Salem, already described in this series, grew out of this club and its fellowship. Other events remain to be chronicled in due season, covering sketching trips to Dedham, Cambridge and the rest. It will be necessary to bear in mind that it is the Boston of 1887 to 1892, which is under discussion, because great physical changes have occurred in the past ten years. The "L" roads, tunnels and stations, North and South railway stations, Emergency Hospital in Haymarket Square, in place of the old B. and M. depot, the new theatre in place of the old Public Library, the State House extension, the disappearance of the old Tremont House and Athenæum, the great improvements at Old Harvard, are but a few of the great changes that have occurred.

In addition, there has been developed one of the most ambitious and comprehensive park schemes in the world, the author of which (Frederick Law Olmstead) died only recently. Mr. Olmstead's office and residence were hard by the home and office of H. H. Richardson, the men from the two offices mingling quite frequently at tennis during the noon hour.

From the foregoing it must be apparent that the new and territories and more than that number of foreign experiences, the hospitable environment and the rich associations of the past, work together to mould and form im-

"OLD NORTH CHURCH."

pressionable minds into such as could never have occurred under the old order of things out west, where such associations are entirely lacking. One is constantly reminded of Mrs. Hemans' lines:

> "Lives of great men oft remind us
> We can make our lives sublime,
> And, departing, leave behind us
> Footprints on the sands of time."

THE LIBRARY.

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PERSPECTIVE OF PROPOSED KENTUCKY BUILDING, ST. LOUIS WORLD'S FAIR, ST. LOUIS, MO.

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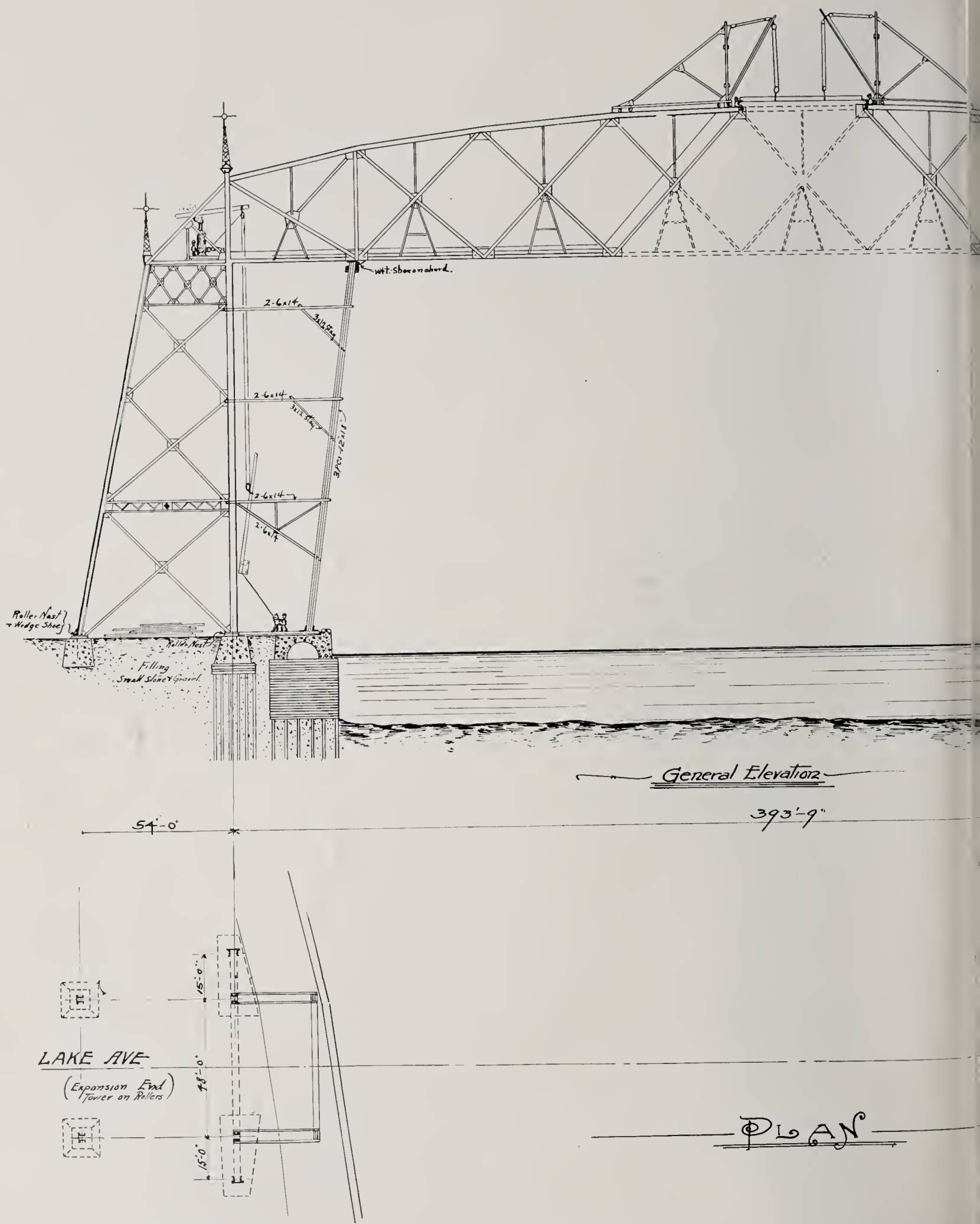
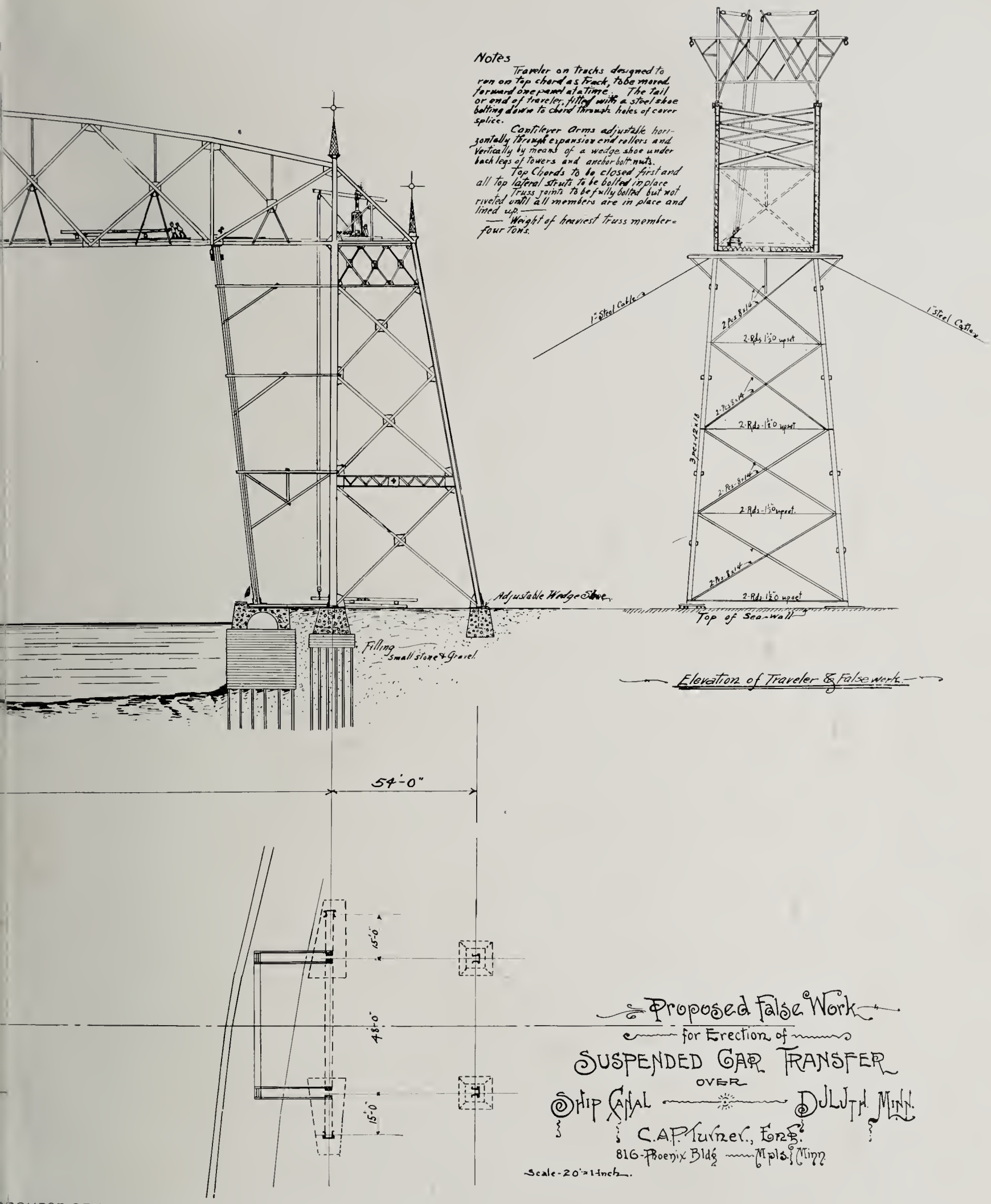


FALSE WORK FOR ERECTION OF SUSPENDED CAR TRANSFER, N
C. A. P. Turner, I

Supplement to
The Western Architect.



COURSE OF CONSTRUCTION OVER SHIP CANAL, AT DULUTH, MINN.
ed, Minneapolis, Minn.

February, 1904.

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PERSPECTIVE OF PROPOSED KENTUCKY BUILDING, ST. LOUIS WORLD'S FAIR, ST. LOUIS, MO.

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SKETCH FOR RESIDENCE by the late HARVEY ELLIS.
J. W. Stevens, Architect, St. Paul, Minn.

ST. JAMES' MEMORIAL CHURCH (EPISCOPAL) HOMEWOOD, PITTSBURG, PA.
Carpenter & Crocker, Architects, Pittsburg, Pa.

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CENTRAL BUILDING, IOWA STATE COLLEGE, AMES, IA.
Broudfoot & Bird, Architects, Des Moines, Ia.

Supplement to
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February, 1904.

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SIX HUNDRED APARTMENT BUILDING, CLEVELAND, OHIO.
Searles & Hirsh, Architects Cleveland.

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STABLES OF J. H. BROWN, CLEVELAND, O.
Alfred Granger, Architect, Chicago.

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RESIDENCE OF J. H. BROWN, CLEVELAND, OHIO.
Alfred Granger, Architect, Chicago.

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RESIDENCE OF J. R. TRUE, (Treasurer of the Northwestern Terra-Cotta Co.,) CHICAGO, ILL.
Huehl & Schmid, Architects, Chicago.

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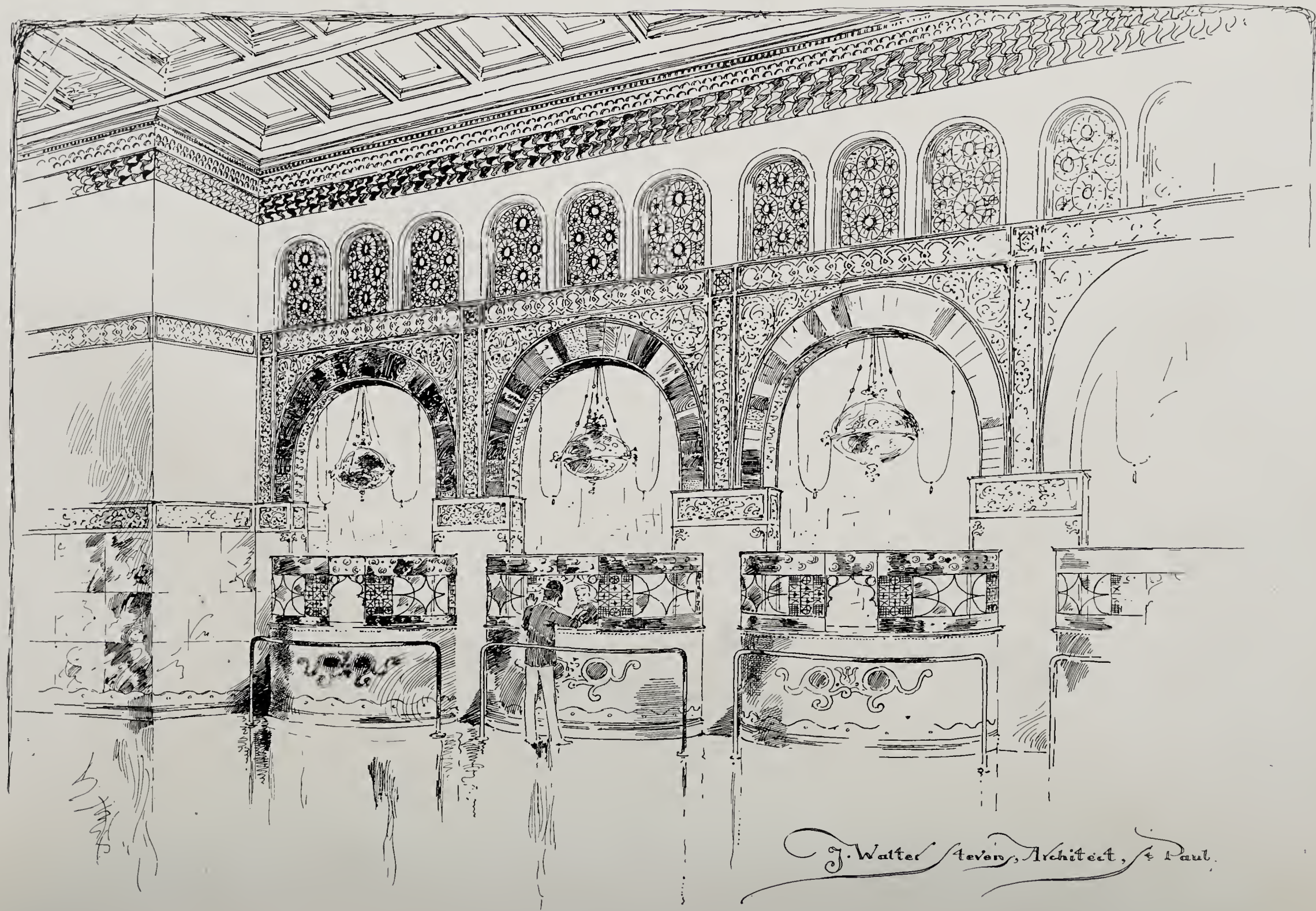

SKETCH FOR INTERIOR OF BANK by the late HARVEY ELLIS.
J. W. Stevens, Architect, St. Paul, Minn.

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SKETCH FOR A RESIDENCE.
Bertrand & Chamberlin, Architects, Minneapolis.

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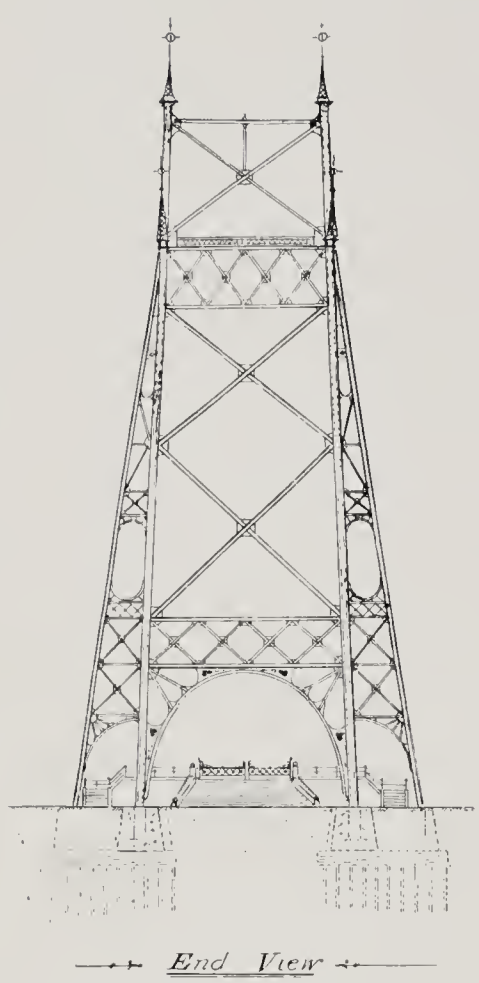
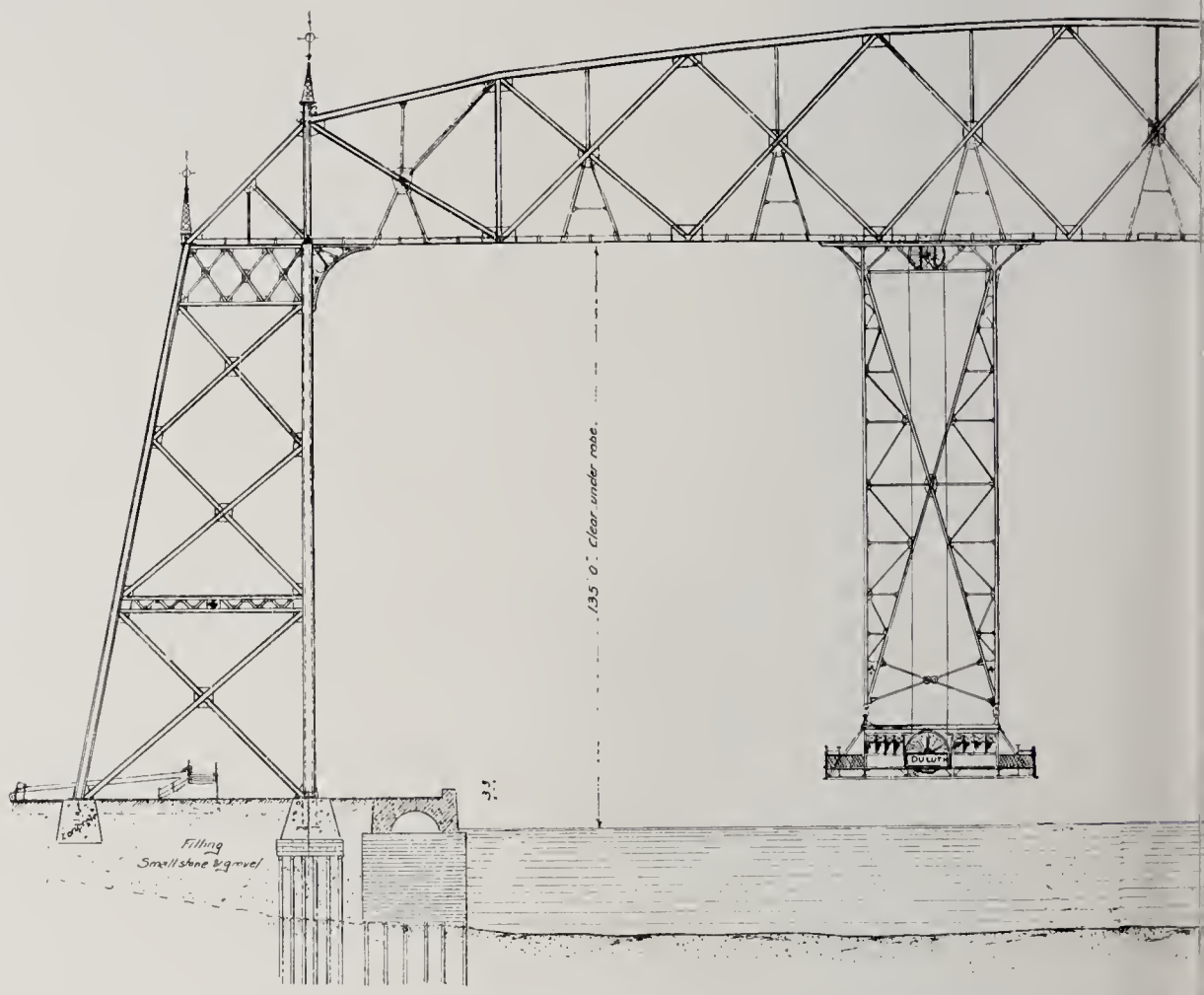
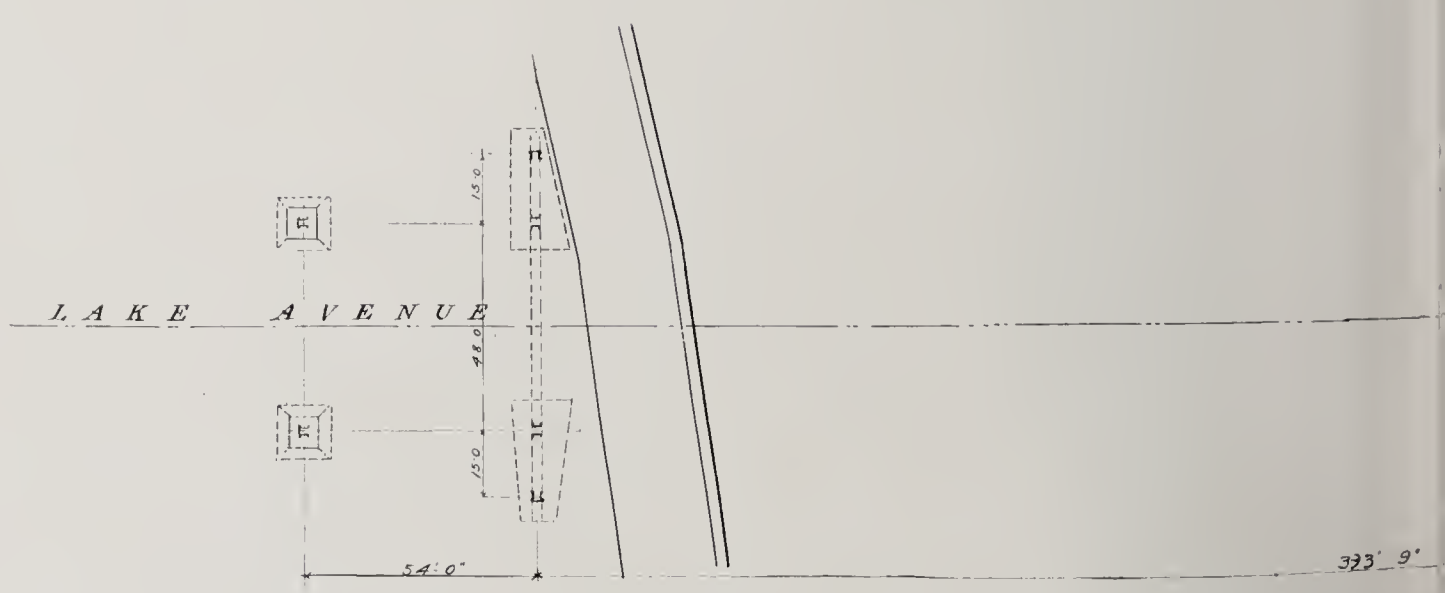


End View



General Elevation



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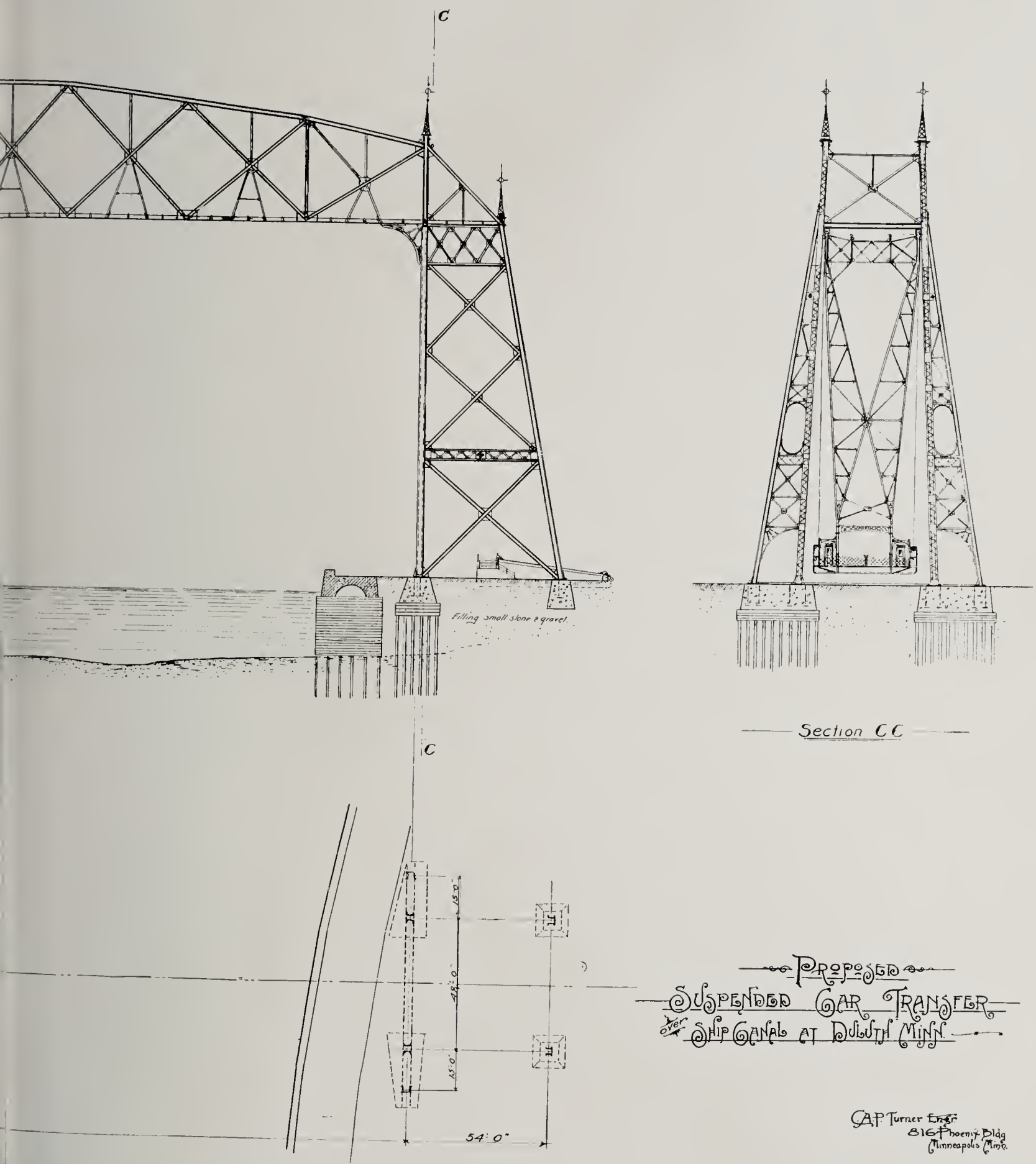

CI OVER SHIP CANAL, AT DULUTH, MINN.
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SKETCH FOR A RESIDENCE.
Bertrand & Chamberlin, Architects, Minneapolis.

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NEW FERRY BRIDGE AT DULUTH, MINN.

W. B. Patton, City Engineer of Duluth, writing for the Engineering News, March, 1902, says: Minnesota Point, the natural breakwater which separates the waters of Lake Superior from the harbor of Duluth, extends in a southeasterly direction, with a width from 300 to 800 feet, for a distance of six and six-tenths miles from the Minnesota shore. At its outer end it is separated from the Wisconsin Point by the "natural entry," through which formerly flowed all the water of the St. Louis and Nemadji rivers, and which was the only means of access to the harbor.

The city of Duluth was originally laid out on the northerly half of Minnesota Point, but this location was soon abandoned for the mainland, about the base of the point. As no deep water channel in the harbor connected the natural entry with the new city, an effort was made to establish an artificial harbor in the lake. This harbor was found to be inadequate and unsatisfactory, and in the fall of 1870 the city began the excavation of a ship canal across Minnesota Point, about a half a mile from the mainland. The work was completed in the winter of '71. This canal was 250 feet wide. The six miles of Minnesota Point thus severed from the mainland was reached by boat, ice or an improvised suspension floor bridge.

The city of Duluth has looked with regret at the large amount of its most valuable dock frontage—the bay side of the point—which it is impossible to use on account of lack of means of access for railroads and teams, and for years efforts have been made to devise practical means of transportation across the canal, which would provide for the business development of the property on the Point.

The canal points directly into the teeth of the prevailing and most severe storms of the locality, and consequently vessels using it must have an absolutely unimpeded passageway. A central pier is an impossibility, and any structure designed to move across the canal must have a certainty of action approaching the perfect. It must be under complete control at all times, as 8,309 vessels arrived and departed, carrying 6,851,729 tons of freight and 88,833 passengers in 1901.

Any design for permanently spanning the canal must have a clear headroom of 135 feet above high water, as masts 120 feet high are carried by some of the vessels.

In November, 1891, a prize of $1,000 was offered for the best design for a drawbridge and elicited twenty designs. The design considered best and most economical was rejected by the U. S. Government Board of Engineers Special legislation was then secured to overcome some of the difficulties, and City Engineer Thos. F. McGilvery suggested a modification of the Rouen (France) bridge, built on the suspension plan.

Mr. C. A. P. Turner, M. Am. Soc. C. E. of Minneapolis, advised, drew and specified a stiff girder form of construction as more secure in Superior storms. The secretary of war approved this type, and granted a permit in September, 1903.

The plans as approved and contracted for, are for a stiff riveted girder design of 393 feet 9 inches span, supported on steel towers resting on pile and concrete foundations, with the bottom chord of the bridge 135 feet above high water.

Two towers 187 feet high will be built first, one on either side of the canal. To these will be attached temporary bents. Work on the connecting horizontal trusses will progress from either side after the manner of cantilever construction. When the ends are joined high over the middle of the canal the bents will be taken away.

The ferry car is suspended by stiff riveted hangers from trucks running on tracks placed within the bottom chords of the trusses. The car is proportioned to carry a loaded street car weighing twenty-one tons, and the remainder of the floor loaded with 100 pounds per square foot. The trusses are designed to carry, in addition to their dead weight of 330 tons, a live load of 120 tons, consisting of the trucks and machinery, the hangers and the loaded car. With the assumed wind load of fifty pounds per square foot against the car and hangers, the live load will be taken entirely off the leeward truss and concentrated on the windward side, so that each truss must be designed to carry the entire live load. The live load stresses are increased for impact as follows: Forty per cent. for chord members, 60 per cent. for posts and diagonals and 70 per cent. for hangers and sub-verticals.

The stresses due to suddenly starting or stopping the car, and to traction, are carefully considered in all affected parts of the structure. Temperature stresses due to a change or 150 degrees F. are provided for in the design.

All parts of the structure are calculated for the assumed wind pressure of fifty pounds per square foot on all exposed areas. The permissible working stress for soft steel is 15,000 pounds, and for medium steel 17,000 pounds per square inch for tension members.

The maximum stresses due to a combination of wind pressure and vertical loading are allowed at 19,000 pounds per square inch for soft steel and 21,000 pounds per square inch for medium steel. The shearing stress in rivets is fixed at 11,000 pounds per square inch. The trusses are of the double system Warren type, with rivetted connections throughout.

The hangers for supporting the ferry car are of stiff riveted construction, thoroughly braced in all directions, to reduce to a minimum the swaying by the wind. The motive power of the car will be electricity, as will also be the heating and lighting.

Owing to the location of the bridge, it is deemed desirable to have a large reserve power, so that if occasion should arise the car could be moved very rapidly. Duplicate fifty horse-power motors will be employed and so arranged that if one is out of order the other can operate the car. The power will be supplied from two independent sources, and a hand-power drive is also provided.

We illustrate the side view, end sections, and the erecting diagram which also was approved by the war department. Work to be completed November 1st, 1904, by the Modern Steel Structural Co., of Waukesha, Wis. The weight with machinery is 700 tons, and the completed work is to cost, exclusive of the foundations already in, $100,000.

WATER POLLUTION FROM DRAINAGE.

The Board of Health of the state of Minnesota on July 9th, 1902, after having obtained from their attorney an opinion as to their powers under the laws of the state, passed the following resolutions:

"Resolved, That from this date all villages, cities and public institutions contemplating putting in new water plants, or repairing or extending old systems, shall submit to the State Board of Health a statement showing the source from which the water is to be taken, and the plans, if any, for purification or filtration of the water.

"Resolved, That from this date all villages, cities and public institutions contemplating putting in new sewerage systems, or repairing or extending old systems, shall submit to the State Board of Health a statement showing the source and place of discharge for all sewage from such systems, and the plans, if any, for the purification or filtration of the sewage."

Under date of July 16th, 1902, a circular letter was prepared giving the legal opinion and the resolutions already quoted, and sent to the parties interested. Not receiving the attention that the subject warranted in the opinion of the board, that body, at its regular meeting January 12th, 1904, passed the following preambles, resolutions and provisions:

"Whereas, The laws of the state provide for the protection of any cistern, well, pond, lake, stream or river in Minnesota against pollution from sewage, drainage or refuse; and,

"Whereas, With the growth of the state and the construction of sewers for villages and cities, there is a constant tendency towards the pollution of such sources of water supply; now, therefore,

"Be It Resolved, That the discharge of sewage by any village, city or other municipality, by means of artificial drains, or a sewage system, into any well, pond, lake, stream or river in Minnesota, is declared to be a public nuisance and hereby prohibited, unless such sewage is first passed through a septic tank or filter bed, or both, as the case may require, the plans for the construction of said septic tank or filter bed having been first approved by the Minnesota State Board of Health.;

"Provided, That this resolution shall not apply to any such discharge of sewage from any drain or sewerage system heretofore constructed, until after January 1st, 1905.

"Any person, village or city, or village or city officer, violating or assisting in the violation of the provisions of this resolution, shall be deemed guilty of a misdemeanor and punished by a fine of not less than fifty (50) dollars nor more than one hundred (100) dollars for every day such sewage is permitted to run into any such well, pond, lake, stream or river.

Unquestionably the board believes it has the power to enforce the order of January 12th or it would not have issued it. Notwithstanding the former order of a year and a half earlier, the latter has a certain suddenness about it—providing it is to be enforced. Many small towns of the state have considerable sewage systems—some of them quite a bit of paved street areas—while the Twin Cities cover something like 100 square miles after a fashion, and the storm water of considerable areas of each finds its way into sewers, as well as a vast amount of house drainage outside the area of paved streets. Probably neither of the (three) large cities of the state could any more than set in motion the proper legislation within the time allowed, to say nothing about raising the means and doing the work.

Nevertheless, the pollution of streams by sewage and objectionable refuse should be stopped, and there is no better time to begin to stop it than now, and if the board has the power to stop it let us hope that they will apply it in a way to accomplish the end with the greatest degree of efficiency and economy. As it is, plenty of trouble is promised the board, but nothing less could be expected of so radical and Herculean an undertaking, and if the board obtain their object within a reasonable time they will have placed Minnesota well to the front of all the states in respect to water supply.

The board has caused to be reprinted a booklet prepared for the American Water Works Association, by Mr. Rome G. Brown, on "The Law Relating to Pollution of Waters of Lakes and Streams." Beginning with, "O, the One who acts according to his heart, gone out of Sahou! I did not soil the water"—from the Egyptian "Book of the Dead." It cites nearly a hundred authorities from all lands and times to establish the right of riparian owners to unpolluted waters.

Except for the great amount of water used by the modern urban resident, the reduction of sewage to a fairly innocuous condition would be a much less serious question than formerly. The use of chemicals is no longer considered among the essentials. The sub-surface irrigation method has been doing good service for a long time, and, although it involves quite an area of land, there are very likely situations where it should be considered. Sewage thus treated has a certain value as a fertilizer—a great value if some of the friends of the system are to be believed. Experiments on a small scale indicate that little or no trouble would be experienced with frost in a properly installed and operated system of this kind, but it would not be wise to assume that the best known European methods could be followed implicitly in the climate of Minnesota without danger. Septic tanks—preferably after the discharge has been through settling tanks to collect the heavier parts of street washings—do much toward ridding sewage of its objectionable features, and if the discharge from these is filtered through beds that are intermittent, the final discharge is found to have been so far changed from the original sewage that pollution is hardly discovered. Several filter beds in use in Wisconsin towns and suburbs are having no trouble from frost. Settlings in these tanks are much less than one would think, while the duration of the filters is beyond belief.

The following is a list of the officers of the Twin City Architectural Club, which were elected at their last meeting held in the Builders' Exchange Rooms at St. Paul, Minn.:

Hal. H. Eads—President, St. Paul, Minn.

A. R. Van Dyke—Vice-President, Minneapolis.

Geo. Blewett—Vice-President, St. Paul.

C. B. Chapman—Secretary, Minneapolis, 33 Loan and Trust building.

John H. Wheeler—Treasurer, St. Paul.

Members of Executive Committee—F. G. Corser, Minneapolis; Thos. A. Creswell, St. Paul.

The enormous 150-feet rotary kilns of the Edison Portland Cement plant in New Jersey—60 feet is about the standard length—are said to be working at a saving of fuel amounting to about 30 per cent. This would lop off perhaps 7 or 8 per cent of first cost.

THE WAY TO SUCCESS AS AN ARCHITECT.

BY THEO. C. LINK.

A generation ago in this country nearly all the men calling themselves architects were self-styled practical men, generally mechanics, a little above their fellow-carpenters in achievements with pencil and triangle. The people were satisfied with their ability to furnish them a house like another house in the next street. The pioneer needs little more than shelter.

It was small honor in those days to be an architect in America. There were no barriers to separate the educated from the uneducated. The ostentatious parade of the uneducated one as a would-be professional man, often resulted in his being himself accepted as the representative of his betters by the default of that honorable backwardness in the parade of their virtues, which has ever distinguished the upper orders of the craft.

The educated one undoubtedly was tainted by the company in which he found himself and he made pictures and told plausible lies in colored perspectives. Hence, in the fiction of those days we find the architect a sorry caricature always with the shady sides prevailing. I regret to acknowledge that a faint and hazy impression of this picture lingers to this day in the popular fancy.

Then came the great art wave of 1876, which spread over this country with the suddenness of a Kansas zephyr. Architects delighted in calling themselves artists—fantastic dreamers, men of emotions and inspirations, steeped in an intoxication of ornamental forms from which they struggled to evolve originality. They produced Queen Annes and horseshoe windows. It was openly asserted that ability in design and capacity for business were impossible in friendly association in the same brain. Architecture, it was insisted, is not a business, but an art. The public took them at their own valuation, but where are the foremost men of that day now?

All this has changed in the last twenty years. Architecture, as to-day practiced, is a new occupation in America. A new order has arisen to meet a new demand, and the architects of the new school, like other quick-witted men, have equipped themselves to meet this new demand.

It is of the qualifications for the man who attempts to fill this new demand that I would speak to the young men on the threshold of active life, particularly to him who is allured to architecture as his future mistress by reason of the flattering long-distance view, which seems to him to offer the most honorable intellectual career in the whole curriculum of professional pursuits.

Truly it is a difficult task to analyze the qualities that lead to success in the practice of architecture. No doubt, it is human nature to imagine that one's own profession involves more difficulties and more complexities than any other; and so I feel about architecture. Still, no one will deny the fact that the architect, in order to become eminent in his calling, must be at least competent in an amazing number and diversity of subjects.

To describe the ideal modern architect is to picture the acme of creative perfection. The client expects no less. This versatile intellectual giant (the architect, not the client) should know all about mathematics, physics, chemistry, decoration, mechanics, painting, electricity, applied art, sculpture, the liberal arts, all the building trades, arboriculture, landscape gardening, law, philosophy, business, ecclesiastical history, hygeia, sanitation, hydraulics, the five orders, the styles, zoology, social economy, civic improvements—in fact, all the arts, sciences and trades, with the possible exception or ærial navigation.

Mind you, I do not say that I am describing anybody within my acquaintance, nor do I draw upon history for a model. Michael Angelo was all right as far as he could go, but he knew absolutely nothing of plumbing, steam-fitting, electricity or sliding-door hangers. Pardon me, I am not frivolous.

I say in all seriousness that the modern architect is expected to know all these subjects which are of such different natures and which emanate from such different and even apparently opposite mental characteristics that it would appear, under the very superficial scrutiny with which we ordinarily examine such questions, almost an impossibility to encompass them all successfully.

Now, we may ask, why do men select a profession in which real success, or at least eminence, entails a life of constant serious study, three-fourths drudgery, no play and rarely a reward of full, unstinted appreciation? Why will men knowingly attempt the impossible?

The temptation is too great. It comes to me with the fragrance of a new thought that the real lodestone is the promise of immortal fame for which no other profession offers equal opportunities to the ambitious. Like the great poets and writers, whose works live forever, the architect can leave behind him monuments in stone and marble that will delight generations who will venerate his name and treasure his memory. To be sure, some paintings and sculptures live forever, but they are stored away in museums; they can never appeal to the masses of the people like a glorious building that stands among them as a friend will stand by you in sunshine and through storms, a close and friendly link between them and the generation of their fathers.

Therefore, so much is sure and indisputable, that a healthy ambition is one of the most important vehicles of success in architecture.

I am aware that it is a dangerous thing to disturb comfortable beliefs, but looking at the men who have been successful in architecture I find that under the existing social and economic conditions the modern architect must of necessity be a forceful business man first and an artist afterward.

The operation of building is undoubtedly the most complicated transaction in the modern business world. I know of no other business that presents the same complexity of interests and requires as much methodical detail, foresight, business tact, executive ability and eternal vigilance, with as small an organization for assistance as he is usually able to maintain. The best design badly executed, with the aftermath of legal entanglements, will affect the standing of an architect immeasurably more than will a veritable

architectural monstrosity executed in a clean, business-like manner. A man can outlive a bad design (are we not, all of us, persistently avoiding certain streets?), but he cannot easily recover from the reputation of having ignored every tenet of common sense and business propriety.

A clean reputation for sterling integrity is a great stronghold and absolutely essential for success in this profession. An architect has many duties almost judicial in their character, and he must enjoy the confidence of both client and contractors for justice and incorruptibility.

I have laid so much stress on the business qualifications and administrative talent necessary to conduct the routine of an architect's office that I may be suspected of considering it merely a commercial science. I do not belittle its aspect as a fine art. I take it for granted that every architect is delighted beyond measure when once in a while he finds himself absorbed in some study of real architecture. I say once in a while, for the architect's usual month is simply thirty days of figures, specifications and plan problems. I know that most people, including some architects, have delusions on this subject. They suppose him in an exalted and noble occupation all the time; he is supposed to have visions and to have his inspiration always on tap.

Architectural inspiration differs from the artistic so radically that a number of sober and solid workmen with the T square and triangle disclaim its very possibility as a spontaneous mental operation. They say that when you have to harness and discipline it to the extent that its results must fit into certain exact dimensions and limitations it loses cast and is debased into a simple process of logical deductions and adjustments within certain laws of harmony and proportion.

However, this is debatable ground. No matter which way you decide it, it is of vital importance that an architect must be an artist at least within the meaning of the modern elasticity of the term. He must have the keen appreciation and innate love of the beautiful—with the longing for the artistic ideal which he himself has carefully set far beyond his own reach, in order that it may indeed be and remain an ideal toward which he may constantly turn and which shall be to him as a religion—with all its hopes and its beliefs and its yearnings for higher and better things. As an artist he should have the creative impulse of his own individuality, together with the strong desire fo achievement, working mainly for the purely intellectual satisfaction which comes with the consciousness of a task well accomplished.

Regarding the artistic temperament of which I have spoken, I do not believe that it is, in its normal exemplification, incompatible with good business management. Why cannot a man express his emotional nature and still be the possessor of well-balanced judgment in things material? Are not these merely different manifestations of an idea passing through the mind in this or that manner—much as a physical fact is revealed to us through the agency of this one or that one of our senses? We find no contradiction in our senses, why should we in the process which sets forth an idea?

As in all human efforts, even in art work, concentration of thought is essential to all successful achievement.

As the architect is rarely allowed to modify conditions, let alone make them, he has always to be resourceful, ever desirous to obtain the right or the best solution to a problem. Strive to be logical. A logical mind will beget a logical building, perversity will bring forth perversity, and beware lest you reveal your true character in your buildings. It is truly said that the children of the mind will reveal the parent.

The architect must be an enthusiast over his own calling—mere assent and willingness to work for a living will count for nothing. He should commence actual work early in life—the longer his experience the better he is equipped.

Although architectural colleges are of quite recent date in this country, and although some of our successful practitioners did not enjoy the advantages of technical and artistic training in schools, the finishing of a course in an architectural school must now be laid down as an essential factor for success. The fatal "taste for drawing" and the dilettante acquaintance with art without a liberal education have brought too many recruits to the drafting rooms and kept them there—an army of disappointed and disgruntled draftsmen of the third order.

The deduction which I therefore make is that the ordinary belief of a successful modern architect's composition as being that of befogged dreamer is a delusion, and that business capacity under the present organization of modern society is a prerequisite to his success, because we find the number of those architects who have achieved success by artistic qualities alone, a minority so small as to become relatively a negligible quantity. The fact remains that the architectural opportunities fall to those who are pre-eminent for business rather than artistic ability.

This is not the place to debate whether this condition is beneficial to the progress of architectural art or otherwise.—St. Louis Republican.

A writer in the Minneapolis Journal states that the Iowa state house was paid for as absolutely fireproof and the state officers are going to overhaul the fireproof contracts that were let to see where the trouble was. There is only one way to make a building really fireproof and that is to have only fireproof material put in it, and then to watch the contractor while he does it. Contractors and architects used to have a little joke among themselves called "The Slow Burning Construction Building." After a few of these structures had burned up like a set of dry goods boxes in hades, the idea fell into disuse and in a big city to-day it is generally acknowledged that there are only two varieties of structures, viz.: fireproof buildings and tinder boxes. The tinder boxes we know will burn; the fireproof buildings we are not quite so sure about. When the fire starts we prefer to be very, very close to the front door and not to have any rheumatism in our left hind leg.

THE DALLAS COUNTY COURT HOUSE AT ADEL, IOWA.

Mark Twain has his share of the spirit of the collector. One day last summer he ran across a fine, old veneered mahogany writing-desk in a New York second-hand store. He had heard that veneering is becoming a lost art, and snapped up the desk and shipped it to Riverdale in triumph.

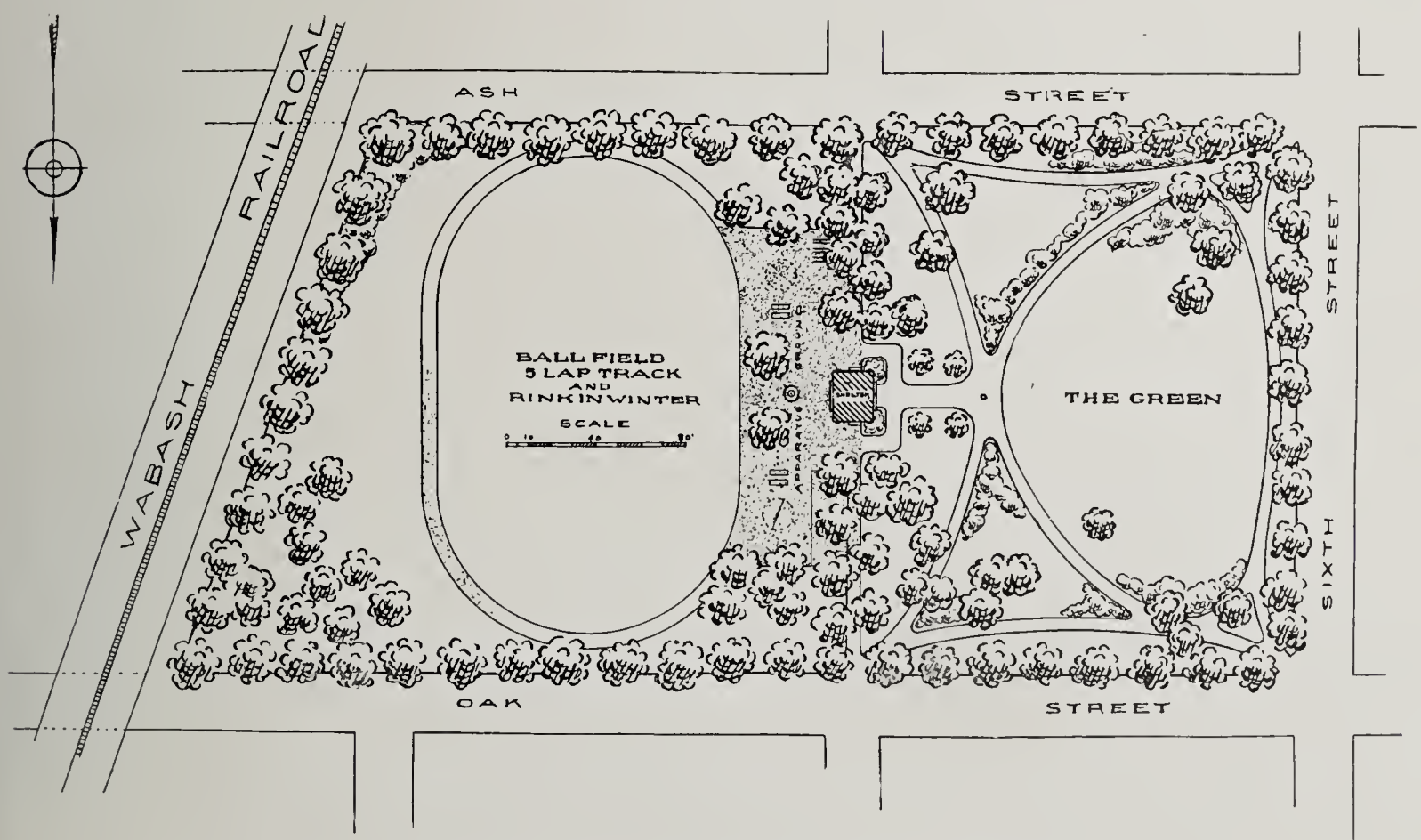
Unfortunately the former Philistine owner had covered it with a thick coat of shiny varnish. The new owner saw that this must be scraped off. As he likes to "putter" he decided to do it himself and then rub in a coat of a certain remarkable oil-finish, the receipt for which he had got in Budapest. But it was a warm day, and the scraping of all the curve and corners of the desk seemed like a better job for the man-of-all-work, the application of the marvelous polish being reserved for his own artistic hand. So he called in the man and told him to take the desk out to the barn and do a thorough job.

Some days elapsed, and to Twain's several inquiries the man gave the same reply—that the work was not yet completed. At last Mark said:

"See here, Terrence; you ought to have that desk done by this time."

"It's coming on, sor, coming on," replied the man. "I was after finishing getting the bark paled off this morning, and I'll have it rubbed up by afternoon."

Mr. Twain went out to the barn. Sure enough, the "bark" was off; and veneering a lost art!—Saturday Evening Post.



ACCEPTED DESIGN FOR ISLE PARK, SPRINGFIELD, ILL.
G. C. Cone, Landscape Architect, Minneapolis, Minn.

REPORT OF INSURANCE ENGINEERING EXPERIMENT STATION.

The Western Architect has referred from time to time to the work of the Insurance Engineering Experiment Station in charge of Prof. Charles L. Norton, under the direction of Mr. Edward Atkinson. The report to the contributors for the year 1903 reached us just too late for the January issue. As an exhibit in accomplishment at small cost the work of the station must be given the palm.

REPORT FOR THE YEAR 1903.

BOSTON, December 12, 1903.

To the Contributors to the Insurance Engineering Experiment Station:—

GENTLEMEN—We have sent or shall send out twelve reports before January 1, 1904, on the various subjects which may be treated in the laboratory. Our contributions have been mainly from the members of the Factory Mutual Fire Insurance Companies, to which have been added several contributions of considerable amount from the representatives of fire-resistant materials, who have desired tests to be made by Professor Norton, and who have either put up the buildings or established the apparatus at their own expense in order that these tests might be made. In some instances the tests have not been favorable, and, as they had been made at the request of the promoters, it has not been incumbent upon us to make any report as we should have made if we had undertaken the tests on our own motion. In other cases the results of the tests have been so favorable that the promoters have supplied additional funds for printing large editions, thus enabling us to make a general distribution of our documents. We have made a complete distribution of some other reports among the members of the Associated Factory Mutual Fire Insurance Companies, as they dealt with matters of general interest to them all; and we have hoped that the circulation of these reports might lead to additional contributions; in some cases that hope has been justified.

We have also offered and have received subscriptions of ten dollars each from individual engineers, insurance inspectors, and others interested in the prevention of loss by fire, for which contributions we agreed to send all reports that might be made before October 1, 1903. But many of our reports that we had expected to send out before that date have been delayed. We have, therefore, extended these subscriptions to January 1, 1904, supplying to these subscribers reports of all the work completed to date.

We now offer to these individual subscribers the opportunity to renew their subscriptions of ten dollars, in consideration of which they will receive all the reports that may be made in the year 1904, unless our work is previously transferred to the Massachusetts Institute of Technology, which we do not expect during that year. The Institute is not yet prepared to take over the work without an endowment, and we are not yet prepared to lay out a complete aud suitable course of instruction in Insurance Engineering.

We have had unexpected delay in getting land at a price within our means, within easy reach of the city. We had made an agreement to purchase an ideal parcel exactly suited to our needs, provided a good title could be given; but the owner, holding under a tax title, could not give one that our counsel would warrant us in accepting. We are still without land for the necessary buildings for testing fire-resistant construction on an adequate scale, and we must wait until we can be supplied with a piece of land at low cost, or until those who may have become interested in this undertaking voluntarily contribute the necessary money to enable us not only to continue our work, but to buy the land on which we may do it in the best manner. I do not ask any contribution on any personal ground. My own services are rendered for what they may be worth in giving direction to this work, as a part of my professional duty to the members of the Factory Mutual System. By consent of the Institute of Technology, Professor Norton devotes time and energy to this work on very small compensation. He has a greater faculty for performing most valuable investigations at the least cost than any other man of science I have ever known.

I think that use of the money thus far expended will have been fully justified. All the more important expenditures proposed have been passed upon by the Committee whom I have asked to advise in this matter, Messrs. Arthur T. Lyman, Howard Stockton and Theophilus Parsons.

The investigation of bog fuel was not one contemplated in the original project. A small amount of money, not exceeding three hundred dollars, was assigned to this incidental work by consent of some of the original contributors, with the approval of my Advisory Committee. The subsequent expenses, perhaps to the same amount or a little more, have been covered by special contributions for this specific purpose.

The total amount of money contributed to date from all sources has been.....$17,689.32

The expenditures for apparatus, compensation of experts, printing and circulating reports, and sundries to date, have been..... 5,574.19

Balance on deposit in the State Steel Trust Company. $12,115.13

Apparatus of considerable cost is now in our possession for future use.

Any suggestion in regard to the future conduct of this undertaking will be gratefully received by the Director and by the Professor in charge. I append a list of our reports to date.

Respectfully submitted,

EDWARD ATKINSON,

INSURANCE ENGINEERING EXPERIMENT STATION.

List of reports issued (or to be issued) in the year 1903:—

No. I.—Fire-proof Wood—so-called.

No. II.—Sound-proof Partitions

No. III.—Wired Glass—Diffusion of Light.

No. IV.—Corrosion of Steel.

No. V.—Slow-burning or Mill Construction.

No. VI.—Mud Fuel, Coke, Gas.

No. VII.—Fire-resistant Roofs for Foundries and Machine Shops.

No. VIII.—Diffusion of Light.

No. IX.—Second Laboratory Report on Corrosion of Steel.

No. X.—Test of Columbian Fire-proof Construction.

No. XI.—Fire and Heat Resistance of Luxfer Prism Glass Electro-glazed.

No. XII.—Bog Fuel, Coke, Gas and Secondary Products of Gas.

EDWARD ATKINSON,

The unanimous and commendable action of the Board of Education in permitting the use of our public school buildings as "neighborhood centers" makes them in a true sense the property of the people. To restrict these costly structures, built and maintained at public expense, to the comparatively few hours devoted to formal education is a policy which the intelligent citizen cannot approve. Wherever the people of a neighborhood are willing to meet the extra expense of opening a school building—outside of school hours—for a proper purpose, and also are ready to secure the board of education against either incidental or accidental wear and tear, the privilege of using such building should be open to them. This the board has now established, and it is hoped the innovation may become a settled and helpful custom.—Chicago Evening Post.

THE NEED OF MUNICIPAL ARCHITECTS.

BY E. P. OVERMIRE.

The recent appointment of Mr. Cass Gilbert as expert adviser in all proposed future improvements of a public nature at St. Paul, Minn., is a happy omen for the development of that city and a well-deserved tribute to a worthy son who has given to his home town a most worthy monument in the nearly completed State Capitol building.

That such advice is needed in all of our large cities, has been patent to all true lovers of art and beauty for a long time past, as is evidenced by the appointment of departments of municipal art, or their equivalents, at Chicago, Washington, Cleveland, New York, Minneapolis and elsewhere. It is probable that other leading municipalities will follow this illustrious leading, and that we shall soon have wholesome checks upon the future development of all schemes for public improvements. The pity of it all is, the absence, or inadvisability of the inclusion in the legitimate functions of such experts, of similar control over private improvements, particularly of such as affect adversely our advance along purely æsthetic lines.

We are sufficiently advanced in our civilization to fully warrant such supervision, and the absurd idea prevalent in many quarters that these matters are of minor importance is a reproach to our boasted culture. We need more breadth in our culture, and also in our individual ideas as to personal responsibility for general results. The idea that the individual is a law to himself when it concerns his home or his business has worked great injustice to the municipality at large, and, except in unusual instances, has caused great regret to those gifted with sufficient foresight to see how cramped and handicapped our descendants will become a generation or two hence, when they shall be fully awake to the possibilities that we had within easy reach and failed to appreciate or utilize.

No really good thing ever happened when it concerned the planning of a city or of a building. The noblest cities of the ancients were the result of deliberate and well-studied planning, and forethought on the part of trained artists who were given a free hand in carrying out approved ideas, just as our leading architects and landscape artists have had in the execution of elaborate municipal improvements to-day. What a city Washington would be to-day had the designs of the immortal George and Major L'Enfant been adhered to; after a century of growth they have returned to those designs with zest, and, best of all, they are going to be realized soon. Americans will not then be obliged to go abroad to see the most beautiful city in the world—it will be to our own national capital that we shall go for that vision—how appropriate!

Our great expositions, beginning with the Centennial in 1876 and coming on down to the World's Columbian Exposition, those at Omaha, Buffalo and Charleston, and the Louisiana Purchase Exposition so near at hand, have been the means of educating our people to the possibilities of architecture and landscape gardening, working together with the fine arts in the hands of competent artists; likewise such noble creations as our National Capitol and Congressional Library at Washington, the great public library movement, our new Minnesota Capitol and that at Providence, R. I., the great university movement, etc., have all exercised a potent influence for the sake of art. This is the leavening process that is soon to permeate the entire mass, and, while it works slowly, is nevertheless working most surely.

The enormous increase of private wealth in recent years has opened doors of endeavor for the building of vast architectural piles for private estates, like those at Biltmore, N. C., at Newport, R. I., at Palm Beach and St. Augustine, Fla., and at San Francisco and Palo Alto and elsewhere in California, the like of which our ancestors but vaguely dreamed.

We cannot think of all this wealth without considering the immense service it has rendered to the world of art; the cold fact that it would have been an utter impossibility, except for almost boundless wealth, a large share of which has been used in this educating process for the general public. Whether or no the owners of great wealth have received adequate returns for the effort to acquire it does not concern us half as much as does the devotion of at least a fair share of it to purposes which shall contribute to our elevation in both a moral and an æsthetic sense. This is one of the great ends to be reasonably expected of wealth, which can be effected by no other means. Like many other agencies for good or evil, all depends upon a proper use of that agency whether it shall prove a curse or a blessing.

Looking at the matter, then, from as broad and liberal a point of view as is possible, we have cause to feel very greatly encouraged at the trend of events in our world of art, which means, if anything, the world of higher ideals, of purer ambitions, and of a more united and worthy achievement than has hitherto been possible. To just the extent that the individual is concerned for these things, to just that extent shall we make true and substantial progress in art.

"Let us, then, be up and doing;
With a heart for any fate;
Still achieving, still pursuing—
Learn to labor and to wait."

NEW STANDARD FOR WORLD'S FAIR.

All things appear to work to the end of making the 1904 Universal Exposition stand in a class by itself. In magnitude and scope there has never been anything like it. No enterprise of the kind was ever endowed with so great a working capital. The world's storehouses never before contained such treasures to draw from.

The Columbian Exposition at Chicago ten years ago, until the present enterprise was launched and its magnitude was apparent, was supposed to have fixed a standard for all time to come. That theory has been thoroughly exploded by the marvelous accomplishments of the Louisiana Purchase Exposition. The World's Fair at St. Louis covers 1,240 acres of ground. All of Chicago's exposition was contained in 633 acres. Not in mere size does that present enterprise surpass all others. The great exhibit palaces differ from any constructed for former exposi-

tions. They are all revelations in the architect's art. The big, rectangular buildings of the past have been superseded by a group of wonderfully beautiful and symmetrical structures, assembled in the form of a lady's open fan. Collectively they are many times larger than any other group, and for architectural beauty they immeasurably surpass anything the world has ever seen. The architects departed from beaten paths, and sought and found new features which they happily combined with the best examples of the architecture of other days.

When the plans and dimensions of the buildings were first made public the people were amazed at the daring of the exposition management. Even were such mammoth buildings erected, where would the exhibits necessary to fill them come from? Now that the buildings are all finished, and the work of installing the exhibits is under way, the question is answered. Even were the buildings three times as large, they could not contain all that has been offered. Inner courts have been roofed over, and where exhibitors have asked for thousands of feet of space they have had to content themselves with hundreds of feet.

Such being the case, the exhibitors and the exposition management have been enabled to exercise a discrimination that could not have been possible ten years ago. Official figures show that in the decade following the Columbian Exposition the value of the manufactured products has increased 50 per cent. Thus the world's storehouses contain treasures that were never before accessible. In the close discrimination that has been observed only the best and most worthy have been accepted, and each exhibit will represent the best in its class.

Life and demonstration have been the keynote in the exhibits division, and wherever practicable, processes are shown together with the finished product.

The exhibit of the Philippine Islands, which covers forty acres, and has been created at a cost of about $1,000,000, is an exposition in itself. The foreign nations have never put forth such great exertions to make interesting exhibits. The keen rivalry that has been manifested between the most powerful nations is reflected in the exhibits from the newer and smaller countries. China is making such preparations as it was never deemed possible that exclusive nation would consider. Fifty-one states countries are working in unison to make the universal exposition complete in every detail.

At this writing, nearly four months before the opening, no doubt exists about the fair being finished in every particular. The show palaces are all ready and the exhibitors are installing their exhibits. The roadways are practically all made. The intramural railway, encircling the grounds, is ready for the rolling stock and the application of power. The landscape is so advanced that a few weeks in the early spring may see it perfect, even though all work should cease until that time. The weather at St. Louis has been so mild all fall, and thus far in the winter, that but few days have been so cold that work out of doors was impracticable.

AN ARTISTIC WALL BRACKET,
Designed and Manufactured by the Flour City Ornamental Iron Works, Minneapolis.

MODERN RAILWAY ARCHITECTURE.

The Chicago Great Western House Cars contain everything but the upper story that a house should have. These are the cars which were put on the Great Western day trains between Minneapolis and St. Paul and Chicago, Des Moines and Omaha December 13th.

They are 79 feet long, over all, which is not only longer than most cars, but longer than most houses. At one end is a wide, closed vestibule and at the other a piazza or observation platform. The exterior of the car is painted in olive green and decorated in gold, and is unusually attractive on account of the many wide windows and the small high windows in the kitchen and toilet rooms, instead of the oval windows which have been used in the ordinary parlor cars.

These cars are, of course, heated by steam, lighted with gas and provided with hot and cold water and all the modern improvements, including a white coated porter to answer your bell.

VENTILATION.

The modern tendency of men and women to crowd together in cities and in buildings, and the increased valuation per foot of city ground compelling the average family to crowd into small and closely constructed houses, have forced upon the attention of the great medico-sanitary specialists of the world, the study of the consequent dangers and how best to avert them. The subject of ventilation receives necessarily a large share of their thoughtful consideration.

In the act of breathing we perform the essential function in the process of sustaining physical life. There is no nutrition of the blood without air, and yet just in proportion as the air we breathe is vitiated by respiration so largely depends the falling or rising of the tone of health of the system. It is additionally evident, then, that we not only must have air, but that it must be so free from the presence of noxious properties that we are generally protected from the dangers to health and life to which we would otherwise be exposed.

The great desideratum is, that the air we breathe shall be fresh atmosphere in which the normal proportion of the pure vitalizing oxygen is present.

Whatever the science of physiology has taught us of parts and functions of the organs of the human body, man has known from the first that "the blood is the life of the body." What we have neglected and still continue to neglect concerning this universally known fact is the proper care we should observe to secure the best and healthiest condition of this life of the body—the blood As a rule sick men and women make every effort to recover health. They spend money, they travel if they can, they seek the most skillful attention, and so desperate is the desire to live that sacrifices of precious heirlooms are made to obtain the money to prolong life. Rich and poor alike are thus anxiously concerned in the effort to throw off illness, that they may live.

Why is not a portion of this concern anxiously displayed in preventing disease or general impairment of health? Why are we not more concerned than, as a rule the best elements of the race show themselves to be, in preserving in purity the blood which is the foundation of the life of the body, by supplying it those properties or ingredients which nature, so abundantly and freely and perfectly, has provided for us?

As the essential food of the blood is the *oxygen* of the atmosphere, to be indifferent as to whether I am securing this food for my blood is deliberately to court loss of health, and if my indifference has been prolonged and my exposure to vitiated air been heedlessly going on for some time, then I am deliberately courting death.

Constituted as we are the one object of our breathing is to sustain the blood, and sustaining this we are sustaining our physical life. And yet, as one of the most eminent authorities on our subject has startlingly and none the less truly said, "Our own breath is our greatest enemy." Why? Because, while the air we breathe into the lungs has conveyed the vitalizing oxygen to the blood, so the blood having used this, changes it in the process, and returns it to be breathed out of the body as now made noxious and so injurious by the presence of carbonic dioxide.

A man produces by breathing about ten cubic feet of carbon dioxide in twenty-four hours, thus if we suppose him to be confined in a room containing one thousand cubic feet of air—which a space ten feet square and ten feet high would afford—he would, in twenty-four hours, contaminate the atmosphere to the extent of one part of carbonic dioxide in one hundred parts of air. A certain amount of carbonic dioxide given off by the skin would have to be added to this. But suppose twelve persons to occupy the same room, then the like effect would be produced in two hours. Now air containing one per cent. of carbonic dioxide is highly injurious, and even half that quantity cannot be long breathed with immunity. Respiration can be continued only with difficulty in an atmosphere containing 5 per cent. of this gas, while 30 per cent. speedily destroys life.

Man's remedy for all these dangers lies in his securing proper and adequate ventilation.

In many of our modern houses the effect to have them almost air-tight in winter is so successfully accomplished that the bodies of the inmates thus stove-heated, and breathing such contaminated air, become as delicate as any exotic in a hot house, to which the pure healthful breath of heaven is death.—Architects' and Builders' Journal.

MOST VALUABLE MARBLE IN THE UNITED STATES.

The most valuable deposits of yellow marble in the United States, if not in the world, has lately been discovered five miles from Helena, Mont., by A. J. Dunton of Rutland, Vt.

Mr. Dunton is a marble mining engineer of twenty-five years' experience. He has also been engaged in the wholesale marble business in his home town for about the same length of time. In October, 1903, he was sent to Helena by a party of Eastern capitalists to locate marble mines if there were any in that district.

Mr. Dunton says he had no doubt when he went west that there was marble there, but even he had no idea of the vast amount and the great value of it. Yellow marble, one of the most valuable grades, and greatly used for the interior decoration of public buildings is found in large quantities in the district. There is also white and blue marble in the mines.

The only place in the United States where yellow marble has been found previous to this is about ten miles south of San Francisco, and only in small quantities there. There are mines of yellow marble in Italy, and the people of this country have been compelled to rely on them when they wished to purchase any.

It is said that the discovery of these mines will have a great effect on the market price of marble, and hereafter it will not be necessary for purchasers to pay the exorbitant prices demanded by the Italian shippers.

There are other marble mines farther west, according to Mr. Dunton, but they contain mostly white marble. This is a very valuable grade, but not as valuable as yellow marble discovered by him.

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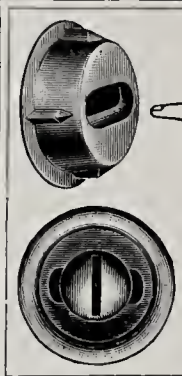

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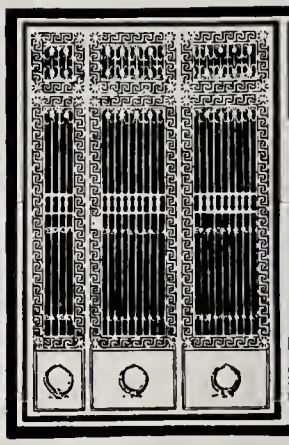

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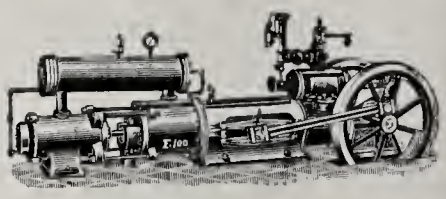

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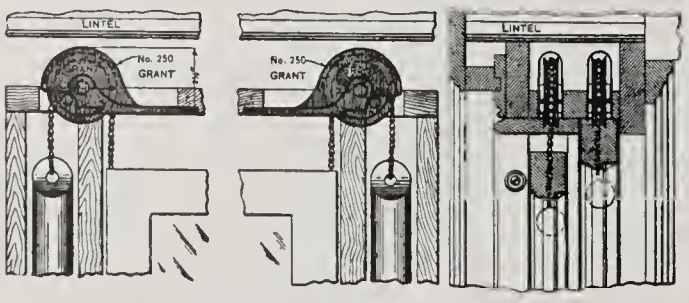

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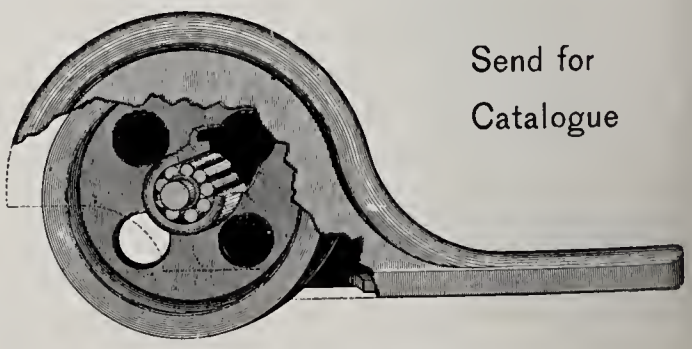

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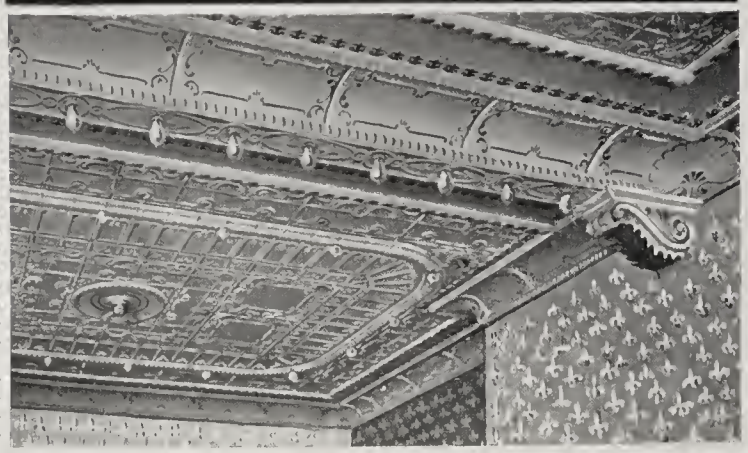

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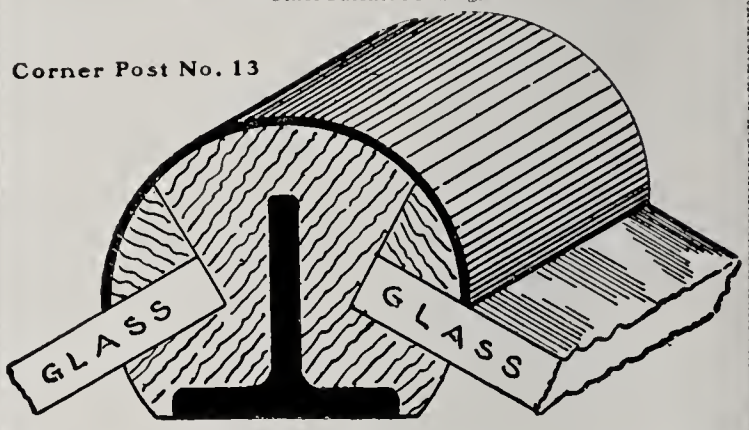

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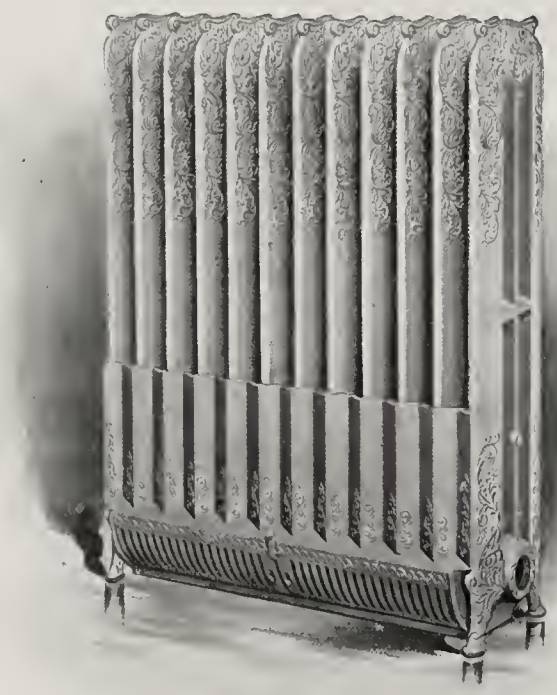

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IMPORTANT NOTICE.

THE great saving in both material and labor secured through our end-matched flooring invention, Patent No. 531,711, as well as the superior quality of the floors, has led to the general adoption of end-matched flooring all over the United States.

The Government engineers, after the usual careful and painstaking investigation, have also approved it and specify its use in Government Buildings.

While we expect to enforce our rights to the extreme limit of the law, we have made arrangements to **protect the public** and give builders and others an opportunity to procure the end-matched flooring **without danger of litigation.** This may be done through our licensees who, in order to identify the licensed flooring, will invariably mark it **Wilce Patent Jan 1st. 1805**, together with their own **name or trademark.**

Rumors are afloat that the price of end-matched flooring will soon be advanced two or three dollars a thousand. We wish to say that there is no foundation for any such rumor, and in this connection we ask you to

REMEMBER

FIRST. That the United States Circuit Court has fully sustained our Patent.

SECOND. That we not only consented but joined in the request to reopen the case to permit further evidence to be submitted.

THIRD. That this action does not indicate any change in the **opinion of the Court**, as it was by consent of both parties.

FOURTH. **That end-matched flooring has not been advanced in price** and **will not** be at any time, any more than is warranted by the usual conditions governing the lumber trade.

FIFTH. That there is not an **inch of waste** in laying end-matched flooring, and besides this there is a **great reduction in the cost** of laying it.

SIXTH. That it makes a better floor.

SEVENTH. That end-matched flooring will **always be sold** at a price that **insures the builder** a substantial **financial saving** over any other flooring in use of equal quality.

EIGHTH. That in using end-matched flooring an under or sub-floor is unnecessary, thereby saving the cost of material and of laying such under floor.

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Respectfully yours,
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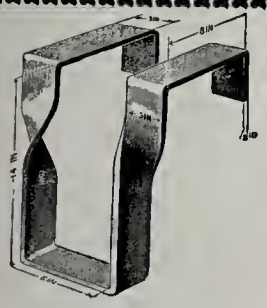

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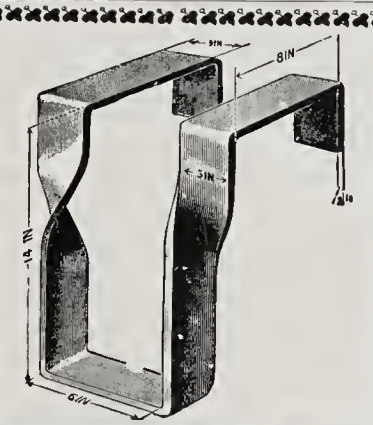

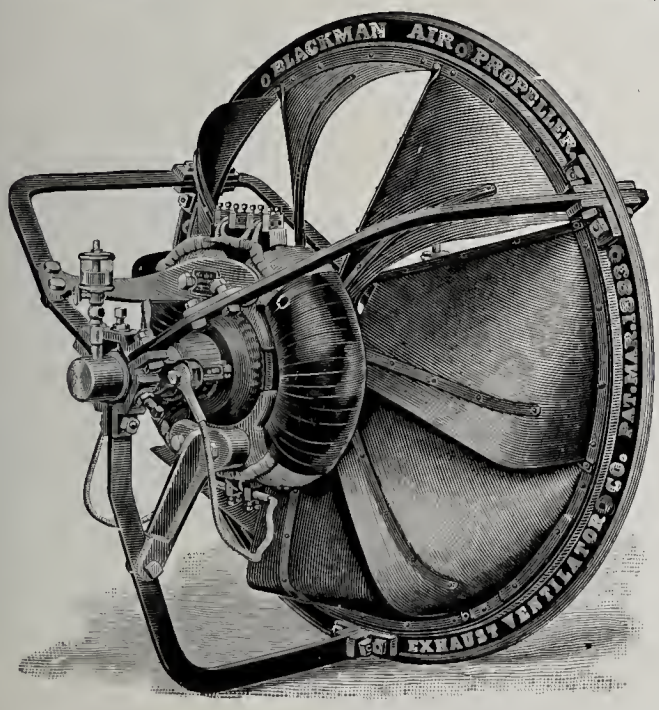

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CHICAGO, Dec. 11, 1903.

Western Architect Pub. Co.,

Minneapolis, Minn.

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Enclosed you will find check for advertising for September, October and November. We are well pleased with the advertisement as we have already received quite a correspondence from the same. I have just returned from New York, and while there we organized a company to manufacture our stone. We interested some of the best known builders in the city.

Yours truly,

STEVENS CAST STONE CO

Per. C. W. Stevens

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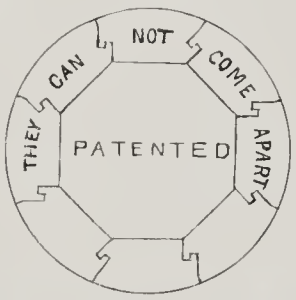

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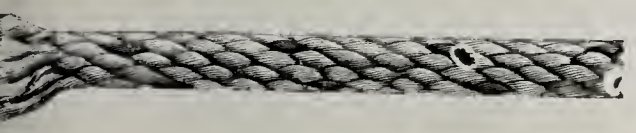

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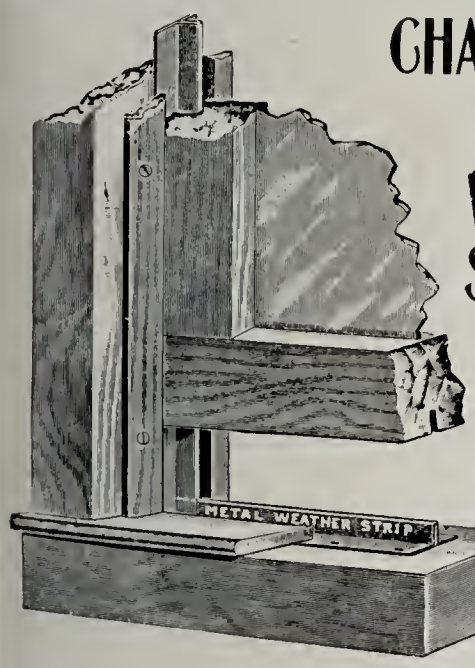

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No Rubber
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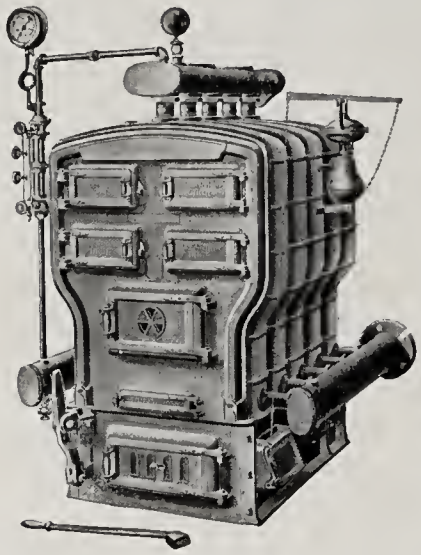

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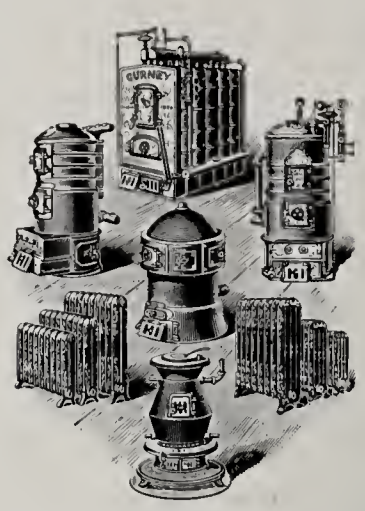

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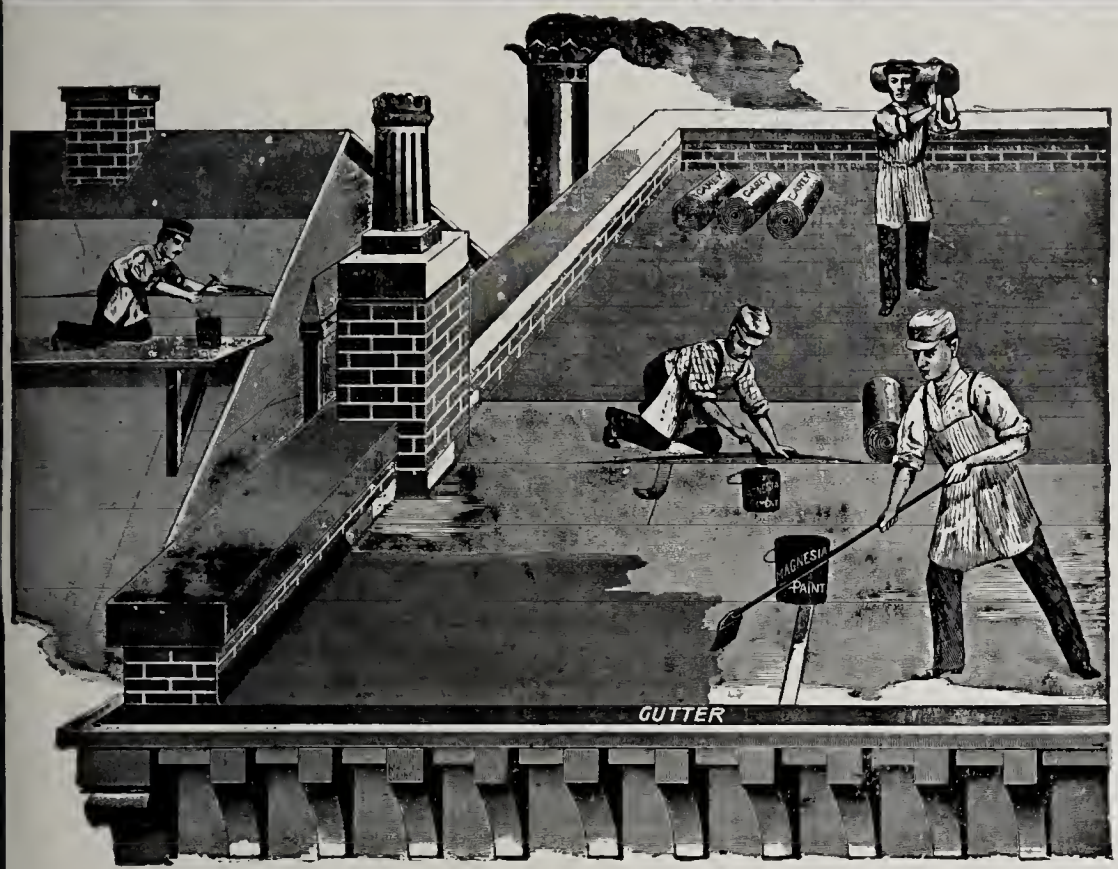

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Only Weighs About 90 Pounds to the Square when finished

Not affected by acids, gases, fumes, hot water, steam, smoke or cinders, heat or cold. Will not buckle, crack, warp, shrink or swell. A little care will prolong its life forever. Adapted for flat or steep roofs, and can be applied all seasons.

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Steel Ceilings are very beautiful, durable and not expensive.

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WE MANUFACTURE MANY HANDSOME PATTERNS

St. Paul Roofing, Cornice & Ornament Co.,

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THE WESTERN ARCHITECT

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Insurance Exchange Building, MINNEAPOLIS, MINN.

ST. PAUL, Commercial Building.

D. H. Burnham & Co., Architects, will on March 15th, 1904, move their offices in Chicago from 1142 The Rookery, to 1417 Railway Exchange Building, corner of Jackson and Michigan Boulevards. Permanent telephone 4145 Harrison.

WANTED—Two responsible architectural firms want the WESTERN ARCHITECT to find a good draughtsman for them. Applications addressed to the Western Architect Pub. Co. will be forwarded to these firms without delay.

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The problem of temperature regulation has been successfully solved by the thermostat as now manufactured for both steam and hot-air heating apparatus; but the more important and much more difficult problem of humidity regulation has been sadly neglected, few companies ever going into experimentation along this line.

It is very comfortable to have our offices and homes heated to a uniform temperature of 68 degrees or 70 degrees; but when this is attained at the expense of the moisture in the air, we have sacrificed health, and got only a small degree of comfort, for a too low degree of humidity is not comfortable, and is very unhealthful.

The Johnson Service Co., which devised the first successful thermostat, has at last invented a humidostat, which, in many respects is more important than the thermostat; but the truth is, each of these devices should be considered indispensable to every building intended for human occupation. The thermostat has come into almost universal use in new buildings, both because it soon pays for itself in the saving of fuel, and because it affords the comfort of a uniform temperature.

The humidostat is bound to make its way even more rapidly than the thermostat, because it soon saves its cost in fuel and robs indoor life of its discomfort and danger.

The principle of the humidostat is not unlike that of the thermostat. It controls valves which admit moisture from evaporating water, and is automatic.

Scientific writers, i. e., writers who intelligently observe common phenomena and interpret their meaning, have long pointed out the evil results of air robbed of its natural moisture, as it is in all of our offices and dwellings; and the most conservative estimate of these writers as to the results of such air upon health is indeed startling and almost past belief. We have endured these results because we knew no better; but to endure them longer and to refuse to investigate the claim of a company, of the high standing of the Johnson Service Co., that this evil can be avoided, is not to be thought of in the architectural profession. If this company will guarantee results, not another building for human habitation should be planned without a humidostat.

A WONDERFUL BUSINESS.

Possibly there is no line of industry in the United States that has grown in such proportion in recent years as that of general advertising, which includes publicity in newspapers and magazines and outdoor display advertising, and through its tremendous force the entire basis of modern merchandising has been revolutionized.

The Chicago papers of recent date devote much space and time to the wonderful growth of the advertising business as a whole, and that of Lord & Thomas in particular, owing to the retirement of Mr. D. M. Lord, the senior member of the firm, who leaves active business life with a rich competence.

The business of Lord & Thomas has been one of the most aggressive and progressive of its kind in the country, having in recent years been under the active management of Mr. A. L. Thomas, whose judgment on advertising matters is considered as authoritative by the vast body of publicity users. Mr. Thomas has succeeded Mr. Lord to the presidency, and will continue at the head of the firm.

Mr. C. R. Erwin, the new vice-president, has been connected with the company for 20 years and is therefore a veteran in the field; associated with him and Mr. Thomas is Mr. A. D. Lasker, the secretary and treasurer.

To give some idea to the public of the growth of advertising as a whole, it might be stated that in two years the business of Lord & Thomas alone has increased one million dollars in the billing, and in the one month of January in 1904 this house has booked $750,000.00 in advertising contracts.

Thirty-five years of wide experience in handling the publicity of a large proportion of America's most successful advertisers have fitted Lord & Thomas to give most judicious and profitable service to enterprising business firms in every line.

The main offices of Lord & Thomas are in the Trude Building, Chicago, and its eastern branch is in the American Tract Society Building, New York.

A SATISFACTORY HEATING PLANT.

Feb. 7th, 1902.

The Roberts Heating & Ventilating Co.,
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Dear Sirs:—We have not forgotten your request to report on the working of the heating plant you put in for us, but have been waiting for a test in the coldest weather. We are now prepared to say that we are exceedingly well pleased with it. The method of distributing heat was somewhat novel and we are prepared to re-enforce this plant with extra heat for the office. But we find the heat we have amply sufficient and well distributed. We are heating our ground floor to a suitable temperature for office work, the second floor is comfortable for the work carried on there, and the third floor is kept considerably above freezing point in coldest weather. The fourth floor only we do not need, or try to heat. We have not forced the furnace at any time, but could increase our heat if necessary by doing so. In short, we are perfectly satisfied, both for results and amount of fuel consumed. We put in your hot-air system for the sake of economy, but we would not care to exchange it at the same price for an elaborate steam or hot water plant.

Truly yours,
G. P. DERICKSON & CO.

The Variety Mfg. Co., of Chicago, have just installed at the Albert Dickinson Co.'s new warehouse in Minneapolis their Cross Horizontal folding doors for freight and warehouse use. Their representative, Mr. W. M. McGillicuddy, 415 Sixth Avenue South, would be pleased to show these doors to any architect or engineer who would like to see them operate.

CEMENT COMPANY IS IN A GROUCH.

Bids are Lowest, But Detroit's Commissioners Will Probably Not Award Them the Contract.

Angered over its loss of a once profitable trade in Detroit the Milwaukee Cement Co. is planning a bitter fight before the council committee on streets on Commissioner Maybury's contract with the Western Cement Co., of Louisville, for the coming year's supply of natural cement for paving and sewer use.

In the bids opened by the commissioner last Monday, the Milwaukee people put in a net price of 58 cents a barrel, 5 cents lower than its own price of last year, and 4 cents lower than the Louisville price for this year. But the low price inducement did not land the contract, so far as the commissioner was concerned.

In rejecting the Milwaukee bid he was acting on the judgment of the council committee on streets of last year and on tests made by Cement Inspector Kinner. Milwaukee cement was being used on Michigan avenue and other jobs last summer, when Ald. Magee, Black and other members of the committee peremptorily ordered its use discontinued, basing their action on tests made from samples gathered by Ald. Black. Since then the commissioner had his cement inspector make very thorough tests of both brands, and finds the comparison bears out the judgment of the aldermen, the Louisville cement showing up considerably stronger. The personnel of the council committee has changed somewhat since last year, Ald. Koch and Reinhardt being new members. The Maybury contract must be passed on by the committee, and the only hope of the Milwaukee people is in convincing the new members that the judgment of the old committee, the commissioner and the cement inspector was wrong.—Detroit Evening News, Feb. 1st, 1904.

In strong contrast to the above are the testimonials we publish herewith regarding the Mankato cement, a natural Minnesota product, which, according to the opinions of those high in authority, is recognized as a leader of all natural cements for concrete foundations, underground work, concrete street pavements, heavy bridge masonry, sewers, etc., as follows:

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(Signed) W. R. McLAUGHLAN,
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Mankato Cement Works: Tests on Mankato cement made in the laboratory have proven the cement to be of first-class quality. Also Mankato cement used for street work in Lincoln was found, after several years, to be so hard that only the very finest tempered picks could be used in opening the street for sewer work. Ordinary picks would not stand.

(Signed) GEO. R. CHATBURN,
Adj. Prof. Civil Engineering,
University of Nebraska.

Dec. 22, 1902.

79-85 Wall Street, New York.

New York, Dec. 24, 1903.

Mankato Cement Works, Mankato, Minn.:

Gentlemen:—In view of the excellent quality of cement which you have furnished for the new Minnesota capitol building. I vary from my usually strict rule in regard to testimonials. A very large quantity of your cement was used in this building and proved entirely satisfactory. It gives me pleasure to commend the excellent quality of cement which has been made by your company.

Respectfully,
CASS GILBERT, Architect.

Minneapolis, Minn., Dec. 12, 1903.

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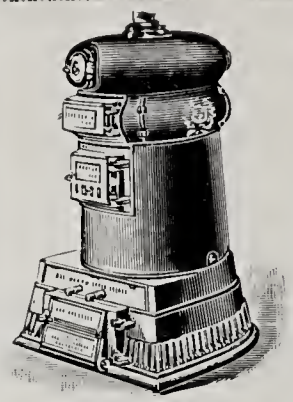

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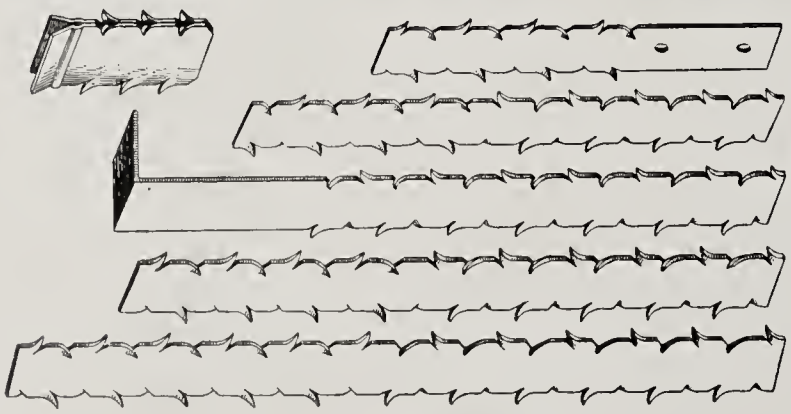

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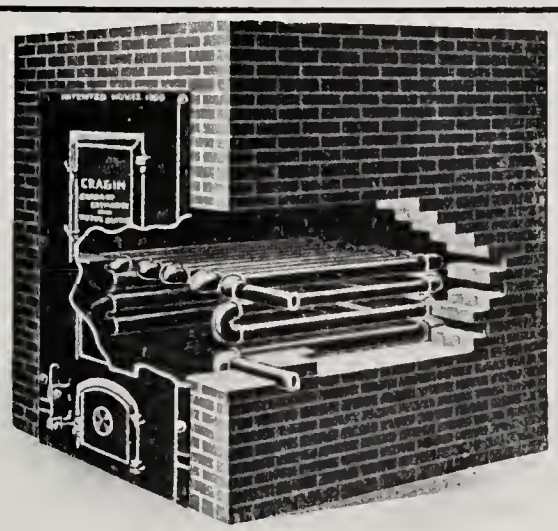

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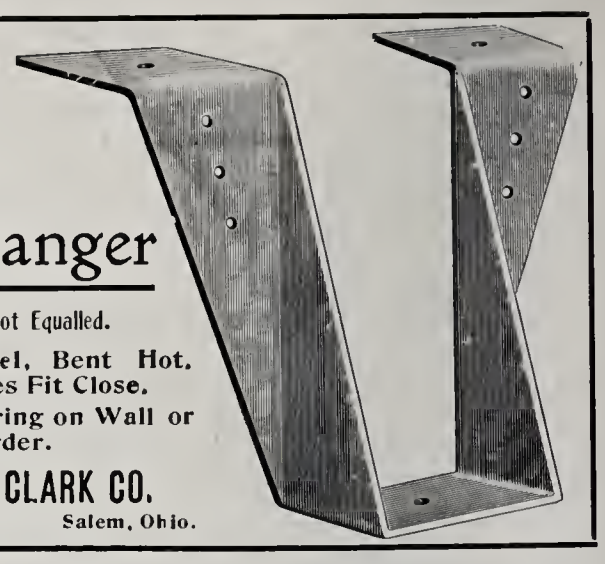

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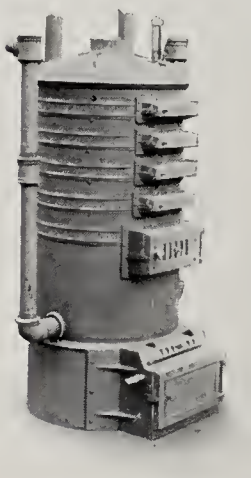

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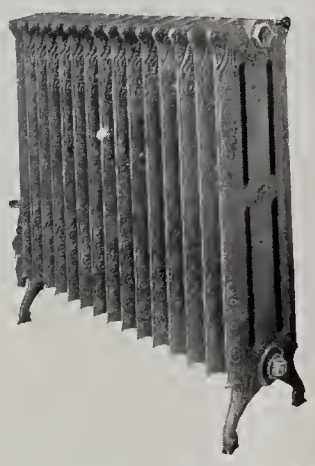

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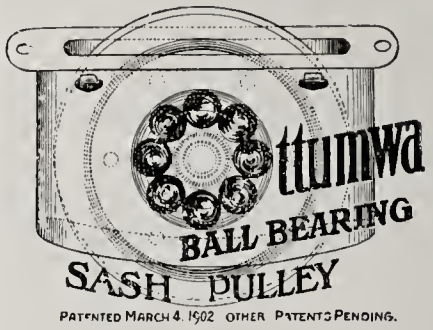

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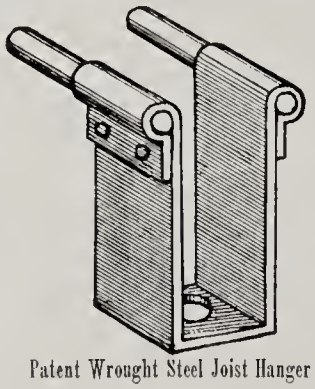

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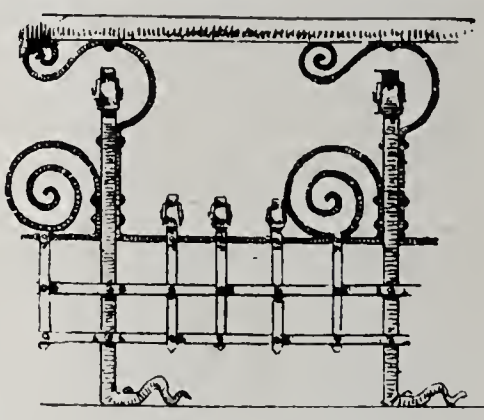

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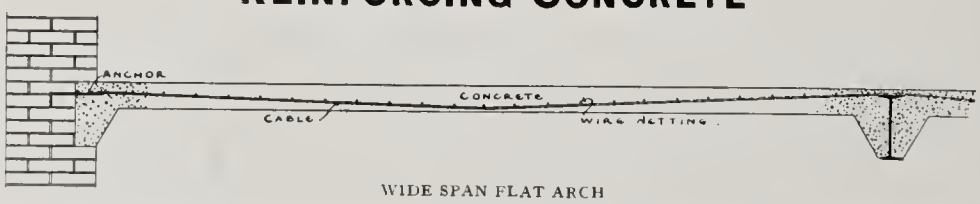

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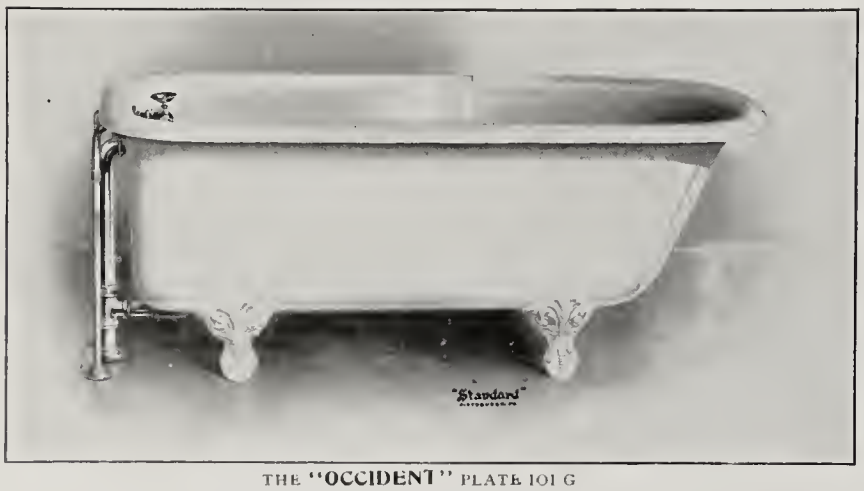

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VOL. 3. MARCH 1904 No. 3.

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FIRE insurance people might now easily launch a new saw that would acquire as much currency as that old saw, "It never rains but it pours."

COTTON prices were such before the late awful slump as to leave much money in the South. Then with $30,000,000 of fire insurance money going to Baltimore, the building fraternity down in those parts cannot be looking for a dull year.

THE amended Chicago building ordinance governing the construction and management of theaters makes it the duty of the building commissioner, the fire marshal or the superintendent of police to order any theater to be closed when it is discovered that there is any violation of the provisions of the ordinance. And if either of the above officials reports to the mayor that any theatrical manager has violated or refused to comply with the ordinance when ordered, it becomes the duty of the mayor to close such theater and revoke its license. Lack of authority can hardly be pleaded by officials after this. Locating responsibility may not be so easy, however.

BUILDING hardware manufacturers have come to an understanding whereby all the designs of all of them have been classified and priced. It is said that cheap goods are not much affected at present, but that the better goods are to be advanced from 25 to 50 per cent at once, and that a 10 per cent advance on all goods is slated for the near future. How much more the combine will be able to assess the consumer, or how much it can reduce wages before it falls to pieces, remains to be seen.

BALTIMORE and Rochester are already furnishing ammunition for renewed warfare between fireproofing systems. The Baltimore experience is being pointed to with pride by adherents of orthodoxy in fireproofing, for there skyscrapers had such a test as they are not likely to have in a generation again. A big skyscraper used for offices becomes a storehouse of an immense lot of combustibles. When the building is attacked from without by such heat as to drive away the occupants and ignite the contents, the structure is put to a far sterner test than could be possible from a fire beginning within the building. Yet steel frame and terra-cotta covering have passed through just such an ordeal with honor.

THE weather has been of such strenuous sort as to make the winter memorable even to those who have had the means to provide fuel. It has also rendered the higher latitudes unsafe for that most "ornary" of all the sons of Annanias who was forever telling how he "het" his house of twelve rooms with four tons of coal for the winter, and as a matter of course all parts of it were uniformly warm. This particular lie was for some reason, which no one can explain, as similar in the mouths of its many votaries as is the call for a cracker among parrots in cages. The experiences of the winter will promote building to save heat. Hollow building blocks that have been finding their way into the market, both in burnt clay and in cement, will be more easily sold than if the winter had been at all reasonable. By the way, it would be of great assistance to people who are really investigating the relative merits of hollow terra-cotta and hollow concrete blocks as heat savers if some careful and intelligent tests of the relative conductivity of the materials could be made—something as conclusive as the tests made at the "Tech" by Prof. Ordway early in the '90s to show the relative value as heat savers of different materials and arrangements of materials used in covering pipes.

THE first annual exhibition under the auspices of the Minnesota State Art Society will be held at the library building at St. Cloud from Monday, April 4, to Saturday, April 16, 1904. Mr. Robert Koehler, of Minneapolis, is president, and Mrs. W. E. Thompson, of St. Paul, is secretary of the society. A considerable list of prizes is offered, and the society offers its services in effecting sales. Mr. Robert Koehler, 4816 Portland avenue, Minneapolis, is chairman of the exhibition committee.

IN view of the order of the Minnesota State Board of Health that municipalities shall not pollute streams with sewage after 1905, the figures of a small venture in purifying sewage become interesting. There are perhaps a dozen small places scattered about the Northwest, more in Wisconsin than elsewhere, now doing something in the way of sewage purification. The Madison experiment is perhaps the most instructive of these. Some time since it contracted for a chemical plant with a capacity of 12,000,000 gallons daily, and guaranteed to take care of 600,000 gallons daily, at a cost of operating not to exceed $3,600 annually. The cost proved to be $7,360 per annum, after deducting cost of pumping, and $3,400 of this was for chemicals. Besides this the filters gradually clogged and the work is reported not very satisfactory generally.

Septic tanks were substituted, while in place of the three polarite filters with a combined area of one-eighth acre, seven filter beds of a total area of an acre, made up with screened cinders, supplied and drained in the way that is now the vogue, were used. These are each flooded one half hour at a time. The septic tank was divided in halves so that a part might be cleaned without stopping the operation of the plant. During the barely perceptible flow through the tank, anerobic action of bacteria is so efficient as to destroy 90 to 95 per cent of the solids in solution, and change at least one-half of the albuminoid ammonia into harmless compounds. So small a percentage of the solids carried by the sewage is precipitated that this tank at Madison ran sixteen months without cleaning, handling from 600,000 to 900,000 gallons daily, and was cleaned at a cost of $62.

The cost of operating the plant for one year was $4,600 including pumping. This pumping cost, when the chemical method was in use, was $3,060, and probably somewhat more after the change as more sewage was handled.

The septic tank seems, therefore, not only to avoid the cost of chemicals, but to be cheaper in operating in other ways and decidedly more efficient, when properly supplemented with filters. In fact, if the health and wishes of fishes are to be taken into account, it is told that the effluent from the septic tank and filter beds agree with them better than that from the chemical methods. The current value of this statement might have been enhanced by the assurance that the tests were not made on any member of the sucker family. The success of Madison and several other small places is a very good argument for the attitude of the board of health in ordering the pollution of streams stopped, so far as it may apply to small towns, but it is not at all clear how the methods applied at Madison and elsewhere can be applied to the large towns whose sewers carry all sorts of waste at all times and enormous quantities of water and street washings during storms.

MR. PARRY, the emancipator, who lately undertook to free the working class from the tyranny of the unions, is reported as having a strike in his Indianapolis shops; his non-union, unorganized employes, finding themselves of one mind after a series of cuts in wages, amounting to some 25 per cent in six months.

COMBINATIONS of manufacturers and others to control trade have been so much the rule of late years, and the cost to the consumer of these monopolistic attempts has been so great that he has had little time to classify them. The average consumer has been obliged to "hustle" so for these combines, that he is not yet half conscious that only part of them have the solid basis of some special legal privilege, or perhaps corrupt transportation contract, upon which to build their monopoly, while the others can only maintain their ascendency by furnishing superior wares and judicious advertising. Instances are becoming plentiful of the failure of would-be monopolies lacking the foundation of special privilege, who have failed for want of public confidence in their output.

Combinations of workmen to monopolize employment in various lines have meanwhile been managed much in the same way as have those of employers, and they have been often reproached with doing nothing to elevate the standard of workmanship, but on the contrary, of seeking to make the performance of the least skillful the standard for all. That such a course is the logical tendency of monopoly adds much force to the accusation. The tendency is not universal, however, as movements are on foot among unions at several points in the country looking towards better training for young men before they will be accepted as members.

This journal has been honored with a request that a member of its staff counsel with representatives of a prominent local building trade as to the best and most feasible way of establishing a sort of trade school for young men wishing to learn this trade. The course will include mechanical drawing as well as the theory and practice of the craft, and it will be made popular by the fact that young men will have to be provided with a certificate of efficiency before they will be admitted to the unions. This movement will at once bring the heartiest support from architects and contractors, both of whom are constant sufferers from the lack of knowledge of drawing among workmen. Young men with such privileges will stand much better chances of becoming foremen, and will, in the course of study, get much of the equipment necessary to contractors.

THE special grand jury having the Iroquois theater disaster under consideration failed to find evidence that the mayor had been personally notified of the violations of the law by the management, but they returned indictments against the commissioner of buildings and an inspector for malfeasance in office, and they are held to be directly accountable for the lack of protection in the theater. The senior manager, the business manager and the stage carpenter are each charged with manslaughter. In the absence of any synopsis of the law and the evidence, it would be folly to comment upon this action by the grand jury, but at a passing glance the effect of holding somebody responsible appears wholesome.

Conditions brought to light by examinations of audience rooms in all parts of the country confirm the opinion already expressed in this department, that the planning and construction of such buildings is of much less moment than their subsequent management. Whether or not existing laws in Chicago were such as to throw so much responsibility upon the building inspection department, as indicated by the report of the grand jury, will be shown by the trials of the indicted officials. If the Chicago code did centralize and locate responsibility to such extent, it is certainly exceptional and may well be copied by other cities.

In the general housecleaning all over the country that followed the Chicago disaster, conditions have been revealed of which the public has been kept in ignorance. Daily papers would not publish details, and although the authorities were in position to do a good deal by something very like "bluffing," they have had no real backing by daily papers, to whom theaters are so favorably known through advertising departments. It is probable that in most cases, had attempts to enforce changes in arrangement and management been taken to the courts, authority would have been found wanting. Of course, managers would have generally shunned the publicity of a suit to enforce an order to do this or that of the things well recognized as pertaining to good management, but that they could legally be compelled to make proper provisions for the safety of audiences is not true in very many cases.

For fear of confusing issues, and at some risk of being accused of indifference upon the subject, this department has avoided the discussion of theater ordinances in whole or in part. We have done this because, human nature being what it is, the arrangement and construction of theaters is an insignificant feature of the large question of the safety of theater-goers. The Iroquois disaster is sufficient proof of this. Build a dozen theaters as well as you know how, and place them in charge of a dozen different managers, and it will not be five years before ten of them will be found ranging from dangerous to very dangerous. About the only feature of importance in the whole question is that of intelligent and responsible inspection. Is any city preparing to secure this? It is as good as certain that the Iroquois disaster will result in an overhauling of building codes all over the country, but we venture to say that the cases where these codes will be backed up by a working system of continuing responsible inspection will be rare. No system in which one official may shift responsibility to another, or in which it lays between officials of different grade in the same department, will answer.

PHILADELPHIA is still making big bids for the honor of being the home of what used to be called the new science in Keeley's time, if we remember rightly. The Franklin Institute has lately been addressed by a discoverer, a Mr. Outerbridge, who has found that cast iron by repeated heatings and coolings can be made to grow one-eighth in its measurements. The Boston technical journal, which devotes goodly space to reporting this discovery, does not say how many heatings nor what degree of heat must be applied to accomplish this, but the experimenter must have been persistent if he repeated the heatings more times than falls to the experience of the grate of a house heater. Let us assume then a house hot water heater, with a grate 24 inches in diameter, which is fired up 500 times before being "burnt out." That it does finally burn out indicates that the limit of its endurance has been reached and that it has endured more serious heatings than Mr. Outerbridge's specimens. Now, the householder, having burned out this old grate, replaces it with a new one cast from the same pattern, and finds no difficulty with the fit; showing that whatever may be the effect of repeated heatings upon the grate, there has been no change in the diameter of the water protected fire-pot. That has not grown by repeated fires. And let us hope that the householder and the manufacturer may live long and die in ignorance of this Outerbridge discovery, that neither of them will have to worry because of the three-inch increase in diameter that came to the old grate during its service and which made no trouble in all those years.

NOWHERE else do we find people so busy throwing discredit on the old saying that there is nothing new under the sun as in the scientific column of a great local daily. Scarcely had it proved by abundant witnesses that a paste of water and ashes forms a very good fuel for house heating—one man had heated his house for several days with nothing else—when a new process of brick-making, discovered in the Black Hills, found its way into print. These bricks, which numerous tests show to be of superior quality, are made from the "sand of Whitewood Creek," into which a small quantity of lime is "mixed mechanically." This mixture is then subjected to "enormous pressure" and placed on cars holding "one thousand bricks each." Several of these cars are shoved into a "hardening cylinder" and steamed for from six to twelve hours "under a pressure of 120 pounds to the square inch." When withdrawn they are "ready for immediate use;" indeed one would hardly expect them to be as fit at any subsequent time. A firm of building contractors used to operate out that way of whom it was told that one would stay by the completed building and hold it up while the other went to the owner and drew the pay. Such partnerships might flourish again if these bricks sell well for a while.

NOTE—By an error in Mr. Overmire's article in our last issue the closing lines were ascribed to Mrs. Hemans, when they should have been credited to Longfellow.

The third line from bottom of page 20 crept in through fault of printers in making up.

RECOLLECTIONS OF BOSTON.

BY E. P. OVERMIRE.

Part Second—Boston Common.

Boston, like most large cities, has numerous breathing places, or squares, around which both buildings and associations cluster, making it an easy matter to subdivide the city, and thus handle with comparative ease a description of the more interesting spots that go to make up the city as a whole.

In taking these up, one would naturally, inevitably, begin with the old "Common," which is the most hallowed by time and associations, and the most jealously beloved and guarded of all Boston's parks. Numerous efforts to plant public buildings here, or in the adjacent Public Garden, have been thwarted, and it is to be hoped will always meet with a similar fate.

THE PUBLIC GARDEN, FROM ARLINGTON AND BOYLSTON STS.

The old "Common" was originally at the edge of the town, the Public Garden having been formed by the opening of Charles street in 1804, although not finally so designated until 1859, after much effort to turn it to less worthy purposes. The Common and Garden are inseparably associated, although the latter is comparatively modern in its layout and adornment. The Common is a kite-shaped plot of ground of about 48 or 50 acres, with Beacon street to the north, Tremont street to the east, Park street at the foot of the kite and Boylston and Charles streets at the south, forming the head of the kite. The Public Garden is a parallelogram of about twenty-one acres, its center being a very picturesque lake, or pond, with a foot-bridge at its narrowest part, leading from the Common to Commonwealth avenue. While the Garden is comparatively level, the Common has a very decided elevation along the Beacon and Charles street sides.

The historic frog-pond, of which every American schoolboy has read, is sacredly preserved with stone and cement, and is a favorite resort in nice weather

THE PUBLIC GARDEN, FROM BEACON AND CHARLES STS.

for small boys and their sail-boats. A good-sized deer-park and the old Central Burying-ground occupy a part of the side towards Boylston street, and there are several monuments in different parts: The large Army and Navy monument, in memory of the Civil War; the Crispus Attucks monument, commemorating the Boston massacre; the Brewer Fountain, and the monument to Col. Robert Gould Shaw and his regiment of colored soldiers, the latter being a comparatively recent addition. It faces the State-House, and the sculptor was Augustus Saint Gaudens, and the architect, Mr. McKim. Views of some of these monuments and two general views of the Common and Garden are given herewith.

TREMONT STREET MALL, SHOWING PARK STREET CHURCH.

Many historic buildings line this large park. At the juncture of Park and Tremont streets is the old Park

PARK SQUARE.

OF THE
UNIVERSITY OF ILLINOIS

DICKERMAN BUILDING, ST. PAUL, MINN.
A. F. Gauger, Architect, St. Paul.

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A SKETCH by the late HARVEY ELLIS.
J. W. Stevens, Architect, St. Paul, Minn.

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THISTLE MOTIF

THISTLE MOTIF

USED IN ALL CARVING AND DECORATIONS, RESIDENCE OF JAMES A. PATTEN, EVANSTON, ILL.
George W. Maher, Architect, Chicago, Ill.

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BREAKFAST ROOM, RESIDENCE OF JAMES A. PATTEN, EVANSTON, ILL.
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DINING ROOM, RESIDENCE OF JAMES A. PATTEN, EVANSTON, ILL.
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CARRIAGE ENTRANCE TO HALL, RESIDENCE OF JAMES A. PATTEN, EVANSTON, Ill.
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DINING ROOM, RESIDENCE OF JAMES A. PATTEN, EVANSTON, ILL.
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MUSIC ROOM, RESIDENCE OF JAMES A. PATTEN, EVANSTON, ILL.
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ENTRANCE TO MUSIC ROOM, RESIDENCE OF JAMES A. PATTEN, EVANSTON, ILL.
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SPIRIT OF THE THISTLE, RESIDENCE OF JAMES A. PATTEN, EVANSTON, ILL.
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RECEPTION ROOM, RESIDENCE OF JAMES A. PATTEN, EVANSTON, ILL.
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FRONT ENTRANCE, RESIDENCE OF JAMES A. PATTEN, EVANSTON, ILL.
George W. Maher, Architect, Chicago, Ill.

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FENCE AND ENTRANCE FROM RIDGE AVENUE, RESIDENCE OF JAMES A. PATTEN, EVANSTON, ILL.
George W. Maher, Architect, Chicago, Ill.

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VIEW OF THE FRONT, RESIDENCE OF JAMES A. PATTEN, EVANSTON, ILL.
George W. Maher, Architect, Chicago, Ill.

PERSPECTIVE SKETCH OF JAIL AND SHERIFF'S RESIDENCE FOR STUTSMAN CO., JAMESTOWN, NO. DAK.
E. J. Donohue, Architect, St. Paul, Minn.

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DESIGN FOR LAKE COTTAGE.
Bertrand & Chamberlin, Architects, Minneapolis, Minn.

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Street Church, whose demolition is now seriously proposed, and opposed, with the Granary Burying-ground adjacent. Opposite this church is Hamilton Place, leading to the old Boston Music Hall. On Tremont street on the east side of the Common, is old St. Paul's Church; on Boylston street, near Tremont, was the old Public Library now removed to Copley Square and replaced by the magnificent "Colonial" office and theater building. Farther along Boylston street comes Park Square, where the Old Providence Station stands, also the statue of "Lincoln Freeing the Slave." At Arlington and Boylston streets, is the old Unitarian

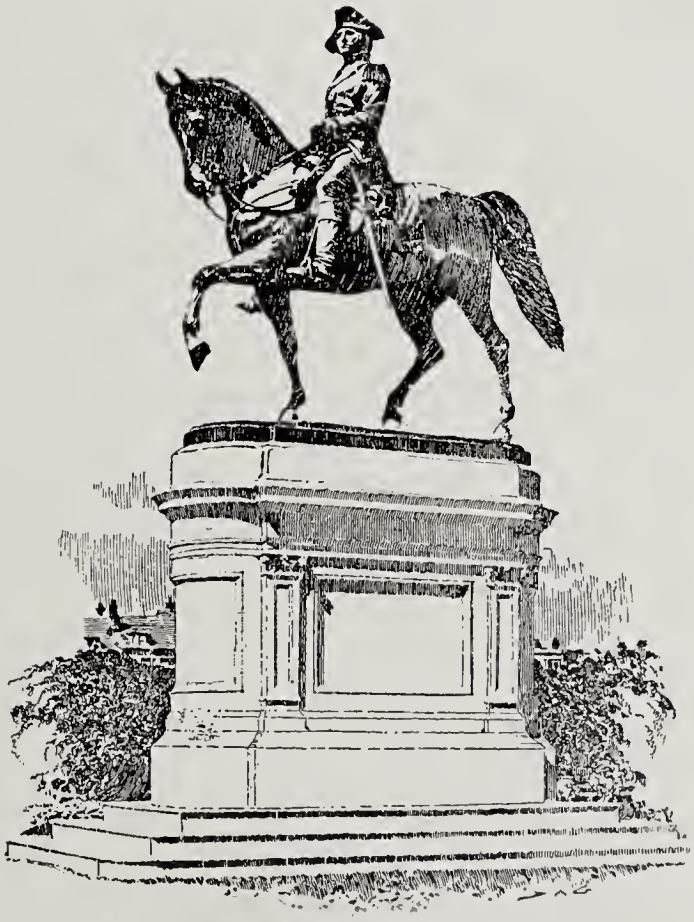
Church, where Dr. Brooke Herford preached for so many years. On Arlington street, on the axis of the Public Garden, opens Commonwealth avenue, one of the impressive fashionable residence streets of the world, and along the north side of this runs old Beacon street, famous as a fashionable and exclusive residence thoroughfare. On this street lived John Hancock, Wendell Phillips, Wm. H. Prescott, the historian,

THE BREWER FOUNTAIN AND STATE HOUSE.

Julia Ward Howe, Oliver Wendell Holmes, the Appletons, and many others of the old aristocracy. The Somerset Club occupies the old Sears mansion, and at the corner of Beacon and Park stood the old Ticknor mansion, now an office-building. It was the writer's

THE APPLETON HOUSE, 54 BEACON STREET, BOSTON.

great pleasure to have been in the office of Mr. McKim, at No. 53 Beacon street, while the new Public Library was under way, a most delightful place for work and study within easy reach of Copley Square, and in a most quiet and favorable environment.

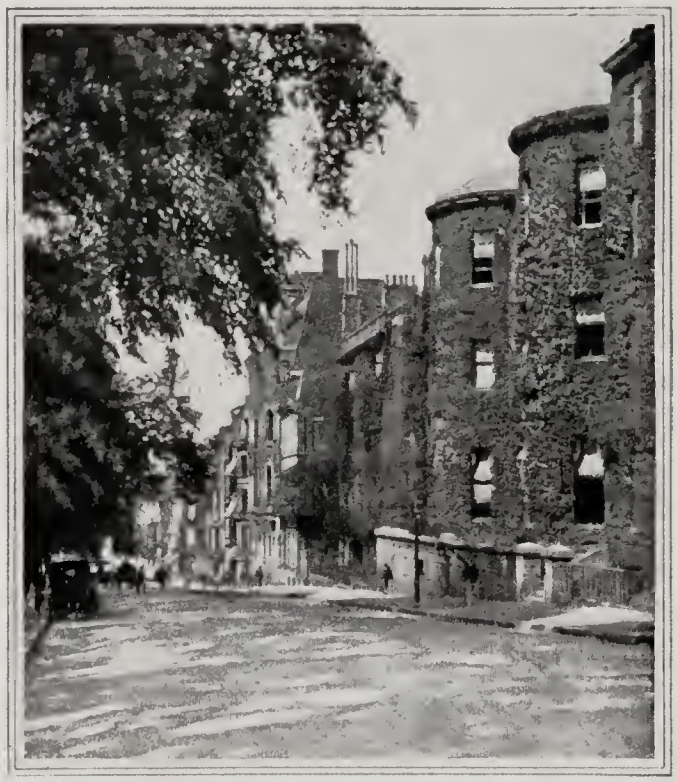


George Washington. Bronze. Public Garden, Boston, Mass.
Thomas Ball, Sculptor, 1869.

In the Public Garden are a number of monuments, those to General Washington and Dr. Morton, the discoverer of anesthetics, being the most prominent and best remembered. Both the Garden and the Common now contain stations of the underground railway, without which the enormous suburban traffic problem

could not have been adequately handled. This is the nearest approach to desecration of these old parks that has been permitted thus far.

On Beacon street, midway between Park and Tremont, formerly stood the old Atheneum, since crowded



BEACON STREET SHOWING SOMERSET CLUB AT THE RIGHT.

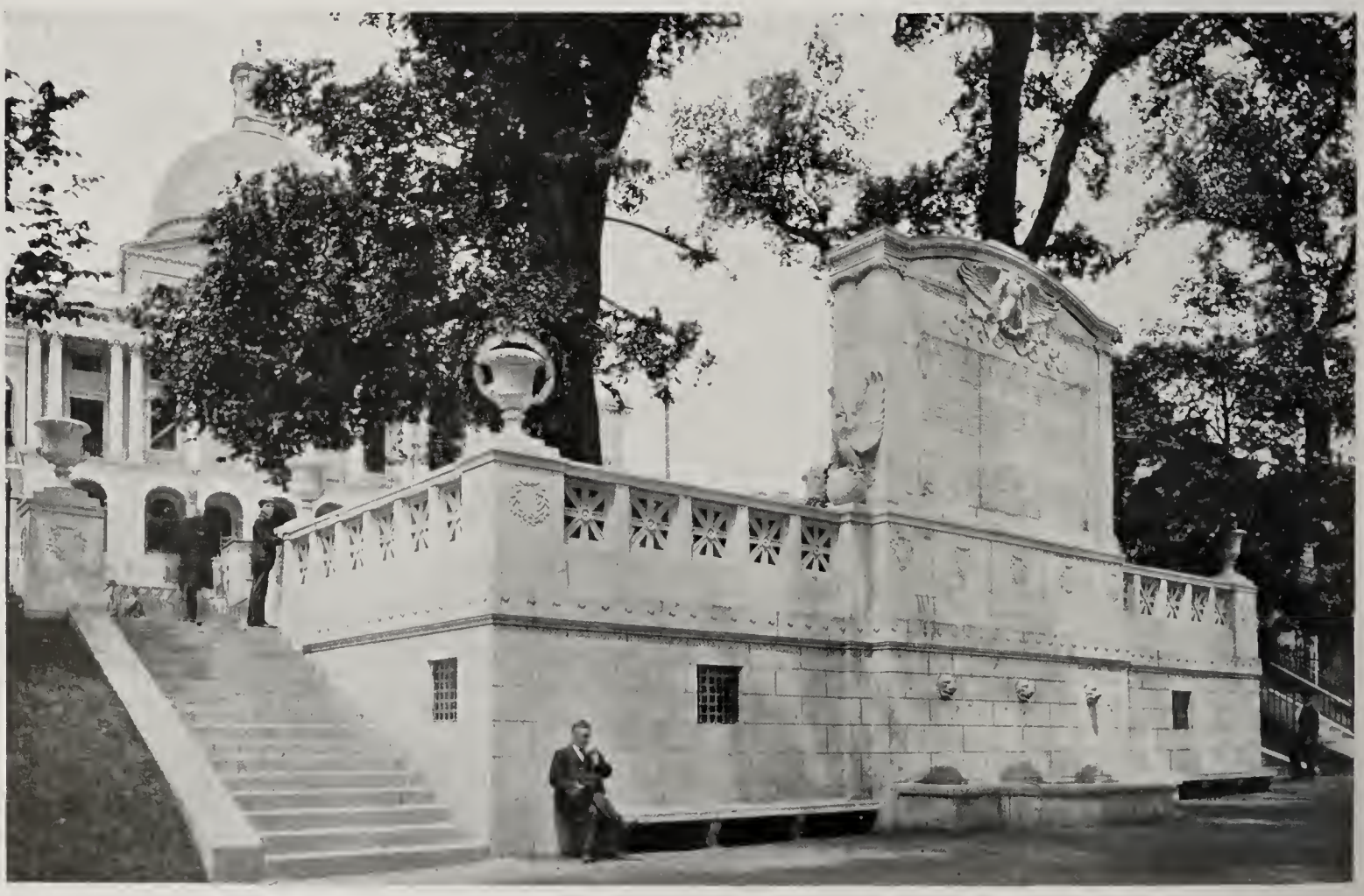
out to the Back-Bay district, and replaced by a modern office-building. This old building opened onto the Granary Burying-ground, thus affording in the very heart of Boston a most retired and pleasant retreat for the old book-worms and students, who loved above all things a quiet place and a congenial poet, or author, for their hours of meditation.

At the corner of Beacon and Park stood the old Ticknor mansion, now a resort for artists and architects, among whom were Miss Josephine Chapman

ON BEACON STREET.

Wright, Boston's female architect, and next door was the office of Edwin J. Lewis, the genial secretary of the Boston Society of Architects.

The extension of the State-House was a deplorable necessity and only the strenuous opposition of the Historical Society and other interested parties prevented the alteration of the front of this venerable building, which would have assuredly been a great calamity.



THE ROBERT GOULD SHAW MEMORIAL.

Boston Common has ever been the people's forum where the patriot, the politician, and the preacher have always found appreciative audiences. It was here that the famous Jesse Lee preached the doctrines of Methodism at a time when there was no church open to him. A tree was planted to his memory on the spot where he preached, by the Methodist people while the writer was there. At times, like the glorious Fourth, Washington's birthday, Decoration Day, etc., one can always find things moving here, most of the old-timers recalling some lively experiences in connection with Boston Common. Having crossed it daily for several years, the writer feels qualified to join to some extent with the host who have naught but praises and patriotism for old "Boston Common."

PHOTOGRAPHING ARCHITECTURE.

In Three Parts—Part Two.

In tripod work, there are really few occasions when one needs a shutter for photographing architecture. Cap exposures may be made in one-half second or less, and although this interval exposes one to too much risk of jarring the camera in windy days, there is some compensation in the greater convenience of the cap for all indoor work. However, as everyone believes he should have a shutter, there are a few things to note in selecting one. As a rule avoid those in which diaphragm and shutter are combined, the leaves of the iris opening and closing to make the exposure. These admit less light during a given short exposure than do such as have shutter and diaphragm separate. They are also quite too complicated as a rule. Of late, makers have placed on the market diaphragm shutters which are claimed to consume but a small fraction of the time of the exposure in opening and closing, and for long exposures they are seen to do this, but it is to be feared that they cannot apply the principle to very short exposures.

Some very simple shutters are probably really more serviceable for architectural work than any having the time index. A shutter that will give a reliable instantaneous exposure of say 1-25 sec., with another controlled by the bulb and another requiring 2 pressures for a time exposure, will be better for architectural work than anything more complex. The exposure of 1-25 sec. will be short enough for people walking, while the bulb exposure can be made in about ¼ sec. Of course such speeds would be of little use in recording sporting events, such, for instance as the action of a fast trotting horse, which sometimes makes over 40 ft. per second. For such work, no lens shutter is suitable.

Shutters are sometimes made in which it is attempted to overcome the tendency to under-exposure of foregrounds in quick exposures out of doors. Very little can be done in this direction without going to such an extreme in the shape of the blades of the shutter as to make it undesirable for all around work. However, in making cap exposures out of doors it is well to make it a practice to raise the cap over the lens.

It sometimes happens that this tendency of backgrounds to over-expose may be remedied to a degree in the development, by tilting the tray so as to stop the action of the solution on the sky and roofs before the foreground is completed. Not all pictures are so composed as to admit of this, but one should always take adavntage of such a chance when it offers.

A rough and fairly accurate test of the speed of a shutter at moderately short exposures may be made, if enough is at stake. Suppose a buggy axle to be propped up and the wheel to be whirled at a rate of say one revolution per second. Suppose the rim to be say 10 ft. in circumference and to have a white band one inch broad fastened to it. Place the camera where the image of the wheel on the plate will be large enough to measure the distance traveled by the white band on the dry-plate. After exposing and developing, if the image of the moving band were to show say 1-30 of the circumference of the wheel, or 4 inches by the scale of the photograph, then the band will really have traveled 3 inches, showing that the exposure lasted 1-40 second.

The emulsions of modern dry-plates are fairly successful in retaining color values of building materials; indeed the use of the color-sensitive plates and ray-filter appears at times to overdo things in the effort to retain color values. Dark-colored materials of crystalline nature like some sand-stones give unnatural effects, but as a rule to get the best results one must rely on suitable lighting.

The color-sensitive plates and ray-filter may be of use in getting a better general effect in out-of-door work, and there may be occasions when the element of light-blue is sufficiently marked in the object to be photographed to demand the use of these plates. If used, they should be handled with the greatest care until developed and cleared, as they are more easily fogged than other plates.

Emulsions on commercial dry-plates and the quick developing papers (bromides), used for enlargements, as well as on the very slow developing papers (Cyko, Velox, etc.), have this in common, that no great uniformity has ever been maintained by makers in the quality of sensitiveness to light. With dry-plates or films for out-of-door work, between variableness of light and shutters, one can but guess at the sensitiveness of a given emulsion, but when one tries different emulsions of a given brand at such slow work as copying or lantern-slide printing, he finds, as he does with printing bromide papers, that they are far from uniform in sensitiveness.

With the papers, and to a considerable extent with the plate emulsions, the slower work "harder," (more contrasty), and the quicker are "softer."

As a rule it is not advisable to use very quick plates on building work, but after making the negative, if one is to attain the best results, he must use a paper for the print that will make the most of the negative. For purposes of reproduction, if the negative be fairly vigorous, none of the commercial papers are better suited than the glossy printing-out sorts such as "Kloro," "So-

lio," etc. The old-time albumen papers probably give a better quality of shadow but can hardly be had now.

Of the bromide papers, the very quick sorts used for enlargements may be used for contact printing with good results, but must be handled as carefully as dry-plates to prevent fogging. One of these, a very rough, buff-tinted paper, selling under the trade name of Royal Bromide may be used with great success for certain effects. There seems to be hardly any limit to the keeping qualities of this paper.

Sometimes a negative and print must be had without the delays incident to the common course of events. There is no time to dry a negative, to say nothing of making a daylight print. This is a time that it is good to have bromide paper. Develop and fix the negative, wash it more or less and while wet gently press on the emulsion side a thoroughly wet piece of bromide paper. Expose as for bromide print—except that the same paper and negative would expose in much less time if dry—develop, fix and wash the print. Probably the washing need not be thorough to enable it to keep long enough for its purpose. In this way a print may be obtained mounted and dried in as little time after reaching the dark room with the exposed dry-plate as commonly lapses between the developing and drying of a negative.

In exposing for printing, it is necessary, both for papers and for lantern-slide plates to expose just right and to develop fully. It is not practicable, here, as in developing the negative, to stop development of an over-exposure at the proper time, but the development must be allowed to proceed as far as it will. In this kind of printing there are constant failures from over-exposure until one becomes accustomed to the cause, which lies in the fact that the high-lights may be retained long after the shadows and low lights are so over-printed as to lose all character.

In contrast to this, a negative may be too weak from over-exposure, yet within limits that will admit of its being brought up by intensification to a point altogether satisfactory.

Intensification of the negative is a process of great value, for reclaiming over-exposed plates not only, but for helping out portions of plates. Often a negative, in whole or in part falls just a little short of what it should be, and it may be partially intensified,—enough to add all the strength possible to the low lights while adding but a trifle to the high lights that may be already sufficient.

Reference was made above to the trick of favoring the foreground in developing. Often when one has one of these badly-balanced negatives wherein the foreground is under-exposed, a local intensification will do much to set things to rights.

Some idea of the value of the process of intensification may be judged from the following: A film negative came to this journal taken from a foreign monument which it was very desirable to publish. Prints from this negative in the state that it arrived would be worthless because of the lack of contrasts, the film having been greatly over-exposed. Intensification of the film left it still too weak for use with any known paper; so the intensified film was used to make a contact print on a dry-plate with lantern-slide emulsion, and this positive was also intensified. From this a negative was made by contact which could hardly be criticised, and a print from this retained in a surprising degree the qualites of a print from an original good negative, it was quite free from all that characterizes prints from negatives made from paper prints.

The reverse process of reduction is much more difficult, for an amount of reduction needed by the high lights is apt to remove the low lights altogther.

Coming again to papers, it may be said that as a rule the amateur will have more trouble with the "printing-out papers"—those that are printed in by daylight and then "toned and fixed"—than with the platinum and bromide papers, and that prints of the former are less likely to keep than either of the latter. Prints on the glossy printing-out papers will retain fine details as well perhaps as any paper, when toned with a gold solution, but the amateur had better pass the "matt" surface papers and "platinite" toning of this class. Good "platinotype" papers are however most desirable in the rougher surfaces, are easily worked, and very permanent. "Platinum" or "platinotype" prints from good negatives may be made that fall very little short of "a joy forever." There are glossy bromide papers which may be used to preserve fine detail if one cannot wait for daylight. One of these of the slow-sort, known as "glossy velox," will often make a surprisingly strong print from a weak negative, but these prints are plagued with mysterious markings on the surface which the makers lay to "abrasion." This is often so bad that one may need to make several prints to get one good one. Slight marks of this kind may sometimes be washed off, and it is said that a weak solution of red prussiate of potash may be used, in much the same way as for the reduction of negatives, with the result of cleaning off these marks.

(To Be Continued.)

A contractor with very large experience in Portland cement work, particularly in the making of walks and floors, asserts that he has never used any mixture of cement and sand for such purposes that has not been notably improved in wearing qualities by the addition of black color. Nor has he ever taken up work where black and gray tiles alternated in which the gray tiles were not inferior. When Mr. J. C. Plant finished the Phoenix building in Minneapolis with Portland cement tile floors in corridors and offices, the idea was so new as to be classed with the experiments. Red and gray tiles were used, and the difference in the two is very noticeable at present, and all in favor of the colored tiles. Lampblack is generally used for coloring these tiles black, and in the absence of experience one would not predict advantage to come from its use, but so much evidence in favor of the colored tiles must be taken as conclusive.

FIREPROOF CONSTRUCTION STOOD THE TEST.

The faith of the people in fireproof construction has not been misplaced, evidence of which is to be found in the investigation of experts into the recent disaster in Baltimore. It is interesting to note that Chicago experts who have visited that city for the purpose of investigating the stability of steel construction have returned and have by their reports strengthened the high favor in which fireproof materials have always been held. In this connection it is worth while to quote the exact expressions of Manager H. H. Gliden, of the Chicago Underwriters' Association, who returned from Baltimore a few days ago, having been sent there by the Association to make an investigation of the conditions following the fire. He said: "All the steel structure of the fireproof buildings is standing intact, with the exception of probably a beam or girder here and there. The structure stands plumb with few exceptions and none of it is over an inch and a half out of line. As regards the covering of the steel work, it was found that brick survived the fire the best, and following that the best quality of tile. All stone work, the poorer tile, and granite have crumbled. Underwriters are viewing the Baltimore loss purely as the result of fire, as naturally there was but little water thrown. There were three sprinkled buildings destroyed, but it is impossible to tell what the effect of the sprinklers was and whether they retarded the fire to any extent. Some of the low buildings, such as Brown Bros.' bank and the Mercantile Trust Company, escaped with little loss. I would estimate the loss on the fireproof buildings at from 50 to 60 per cent of their value. All the fireproof buildings and mercantile structures, with the exception of single occupancy office buildings, carried the 80 per cent clause. The loss above the insurance will be large. The salvage outside of the fireproof buildings will be small and is confined to stocks in the basement. About all there is left is the skeleton steel frames and fireproof covering. All wood in the buildings, elevator machinery, stairways, and light iron work were destroyed."—Construction News.

OBITUARY.

Isaac Vernon Hill, of the firm of Hill & Bray, Duluth, Minn., died February 25, in Los Angeles, Cal., whither he had gone in November last, in the hope of regaining his health. He had been ill for more than a year and for nine months past was incapacitated from active practice. Death resulted from complications following an aggravated throat trouble. He leaves a widow and two daughters, aged 12 and 10. Mr. Hill was 35 years of age, and was an architect of more than ordinary ability. Many of the finer buildings of Duluth and the Iron Range were of his work. He was at one time in business in Detroit, removing to Duluth in 1894 and forming a partnership with G. A. Tenbush, which was afterwards dissolved when Mr. Tenbush removed to Cleveland. The interment was in Los Angeles.

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THE OPEN SHOP.

Under the Declaration of Independence of the United States "all men are entitled to the right of life, liberty and the pursuit of happiness." This generalization of the privileges, as set forth in that document, entitles every man to the right to work—to exchange his labor, his skill, his genius or business ability for a fair remuneration. It also entitles the employer to engage such labor, skill, genius or ability for such an equivalent in money as may be mutually agreed upon. Such an arrangement exists to-day, untrammeled in those avocations which are not controlled by labor unionism and both employer and employe are, apparently, satisfied.

Within recent years the arbitrary demands and the arrogance of labor organizations have become intolerable, not so much in the monetary phase as in the unreasonable exactions and irrational actions which have had the effect of demoralizing industries, and none more than the building trade. It is to meet this condition of the labor world that building contractors all over the country are organizing. Since labor unions are not amenable to reason there is but one alternative—compulsion. The constitution and by-laws adopted by the National Conference of Building Contractors, held in Chicago, Dec. 10, 11 and 12, set forth this very clearly. It was a representative body, embracing 168 delegates from 71 cities and representing 123 separate organizations in the building trades. Succinctly the resolutions adopted stipulated there shall be no limitation as to the amount of work a man shall perform during his working day; no restriction of the use of machinery or tools; no restriction in the use of manufactured material, except prison made; the right to interfere with workmen during working hours is denied; no prohibition of apprentices; the foreman of the work to be the agent of the employer; all workmen be allowed to work for whom they will, and that employers reserve the right to employ or discharge workmen as the wisdom and interests dictate.

It is not to be inferred from these resolutions that the employers purpose to array themselves against unionism. Not at all. What they do intend is to no longer tolerate dictation from the walking delegate and others of his ilk. In other words, they intend to conduct their business in accordance with business ideas and principles, or not conduct it at all.

How unions will accept this new order of things has yet to develop. Heretofore it has been a cardinal principle in labor organizations that all members of a body are equal, entitled to a fixed wage and that a limited task constitutes a day's work, whether the labor is performed by time or piece. It is a recognized poor principle, as it handicaps the dextrous and capable workman, holding him down to the level of his inferior craftsman. Another cause of annoyance to contractors is the refusal of employes to use material not union made. This restriction will no longer be permitted, but the most significant provision of the resolutions is that an employer reserves the right to engage or discharge whom he pleases. This is the "open shop" clause and it means that hereafter the man who invests his money, pays for labor, assumes all the responsibility and risk, will insist upon his prerogative and employ those who, in his judgment, will render him the best service. It opens the way for every man to sell his labor to whom he pleases—whether he be union or non-union. More especially it is aimed at the sympathetic strike, the most iniquitous and tyrannical method ever devised to extort concessions, in nearly all instances unreasonable and unjust, from the helpless contractor. A firm adherence to the principles set forth in the resolutions will again make the employers arbiters of their own affairs and release them from the rapacity of the crew of grafters who have waxed fat at their expense.—The Architect and Builder.

A UNIQUE GARAGE.

The Automobile house which we illustrate on another page of this issue offers what appears to be a convenient and comfortable garage for automobiles.

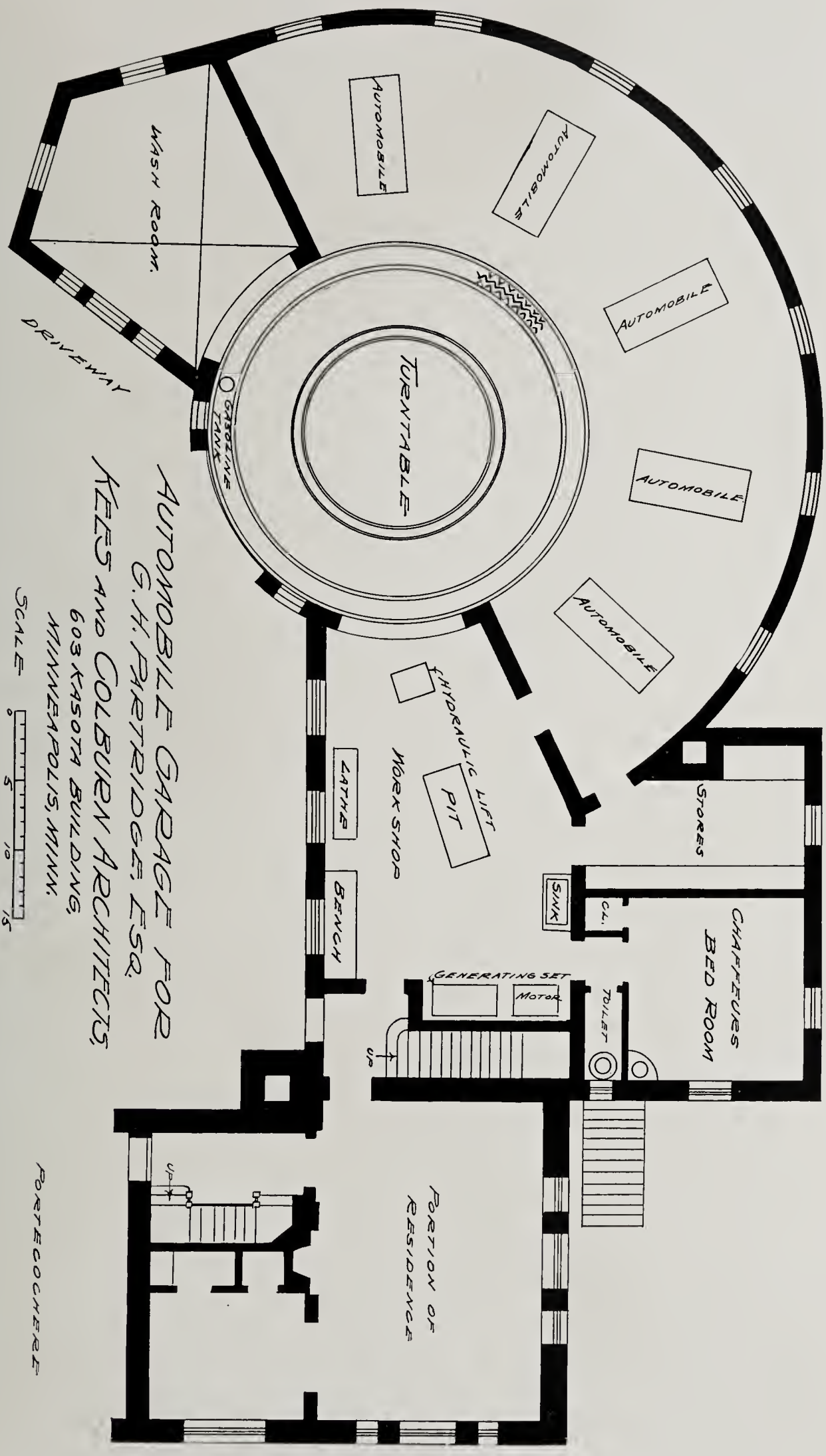
The building is to be 80x60 feet in its dimensions, one story high and to cost $12,000. It will be quite ornamental in appearance, being surmounted by a dome which will give it the aspect of an astronomical observatory, for which it will be doubtless mistaken by uninitiated passers-by.

Its unique feature is to be a turn-table so automobiles can be turned around or switched in any direction on marble slabs, where they are to stand when not in use, to a washroom for cleaning, or to a repair shop. The convenience of the turn-table can be judged from the plans furnished by Kees & Colburn, the architects, who are the originators of the idea as well as the designers.

The suggestions no doubt came from the turn-tables used in roundhouses for railroad engines. The marble slabs, which will not absorb oil drippings, take the place of the stalls for locomotives, and at each end are to be registers for ventilating and taking away the gas vapors from the machines, as well as outlets for tire air, besides having water for gasoline tanks and also electric plugs for electric machines.

The repair shop is to be equipped with a workbench, lathe, air pump and generator and hydraulic lift, and is also to have a pit so that a workman can get beneath a machine while tinkering with its internal economy. There is to be a storeroom for the livery of chauffeurs and automobile equipment, as well as a chamber in which the chauffeurs will sleep. The floor of the building is to be of tile, with the exception of the sleeping-room, and the walls are to be a glazed brick.

In the immediate vicinity of Harbin, Manchuria, there are 200 brickmaking plants, the cost of which was 500,000 rubles ($257,500). Two of these plants were constructed by the administration at a cost of 200,000 rubles ($103,000). Most of the brick produced are used in the construction of the city. A very good grade of red brick is produced and sold for 6.50 rubles ($3.35) per 1,000. Most of the work is done by the Chinese, who are paid 35 kopecks (18 cents) per day.



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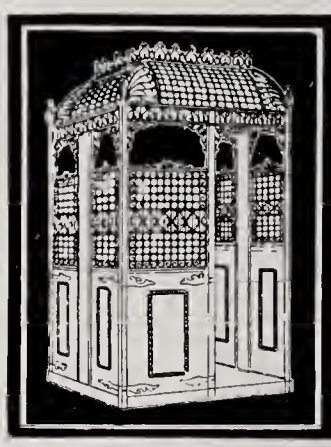

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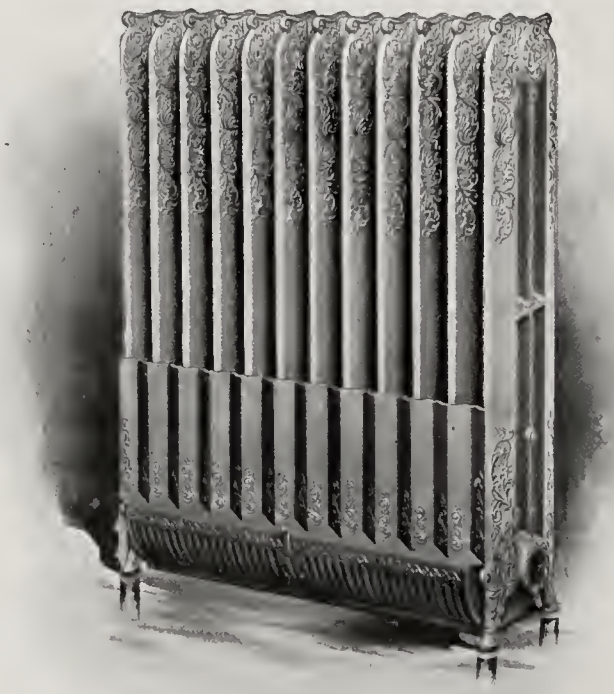

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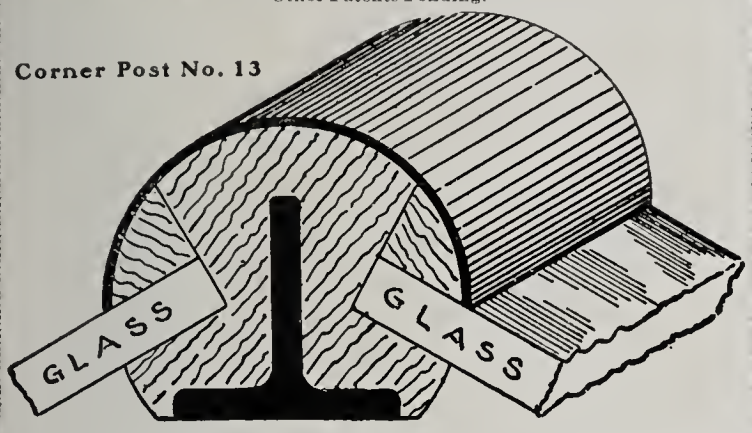

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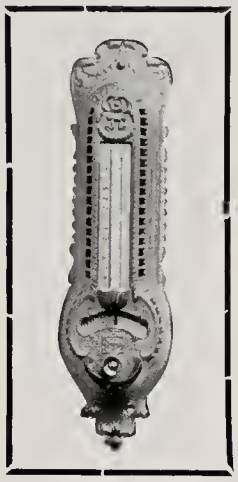

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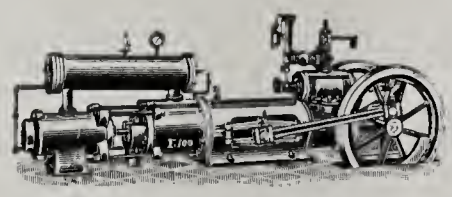

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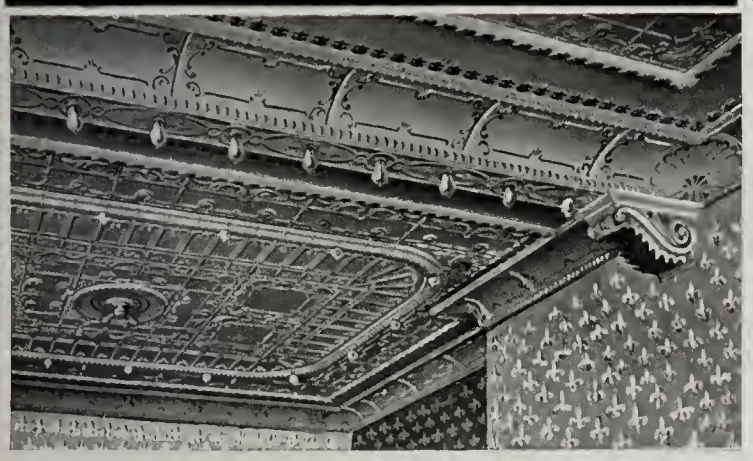

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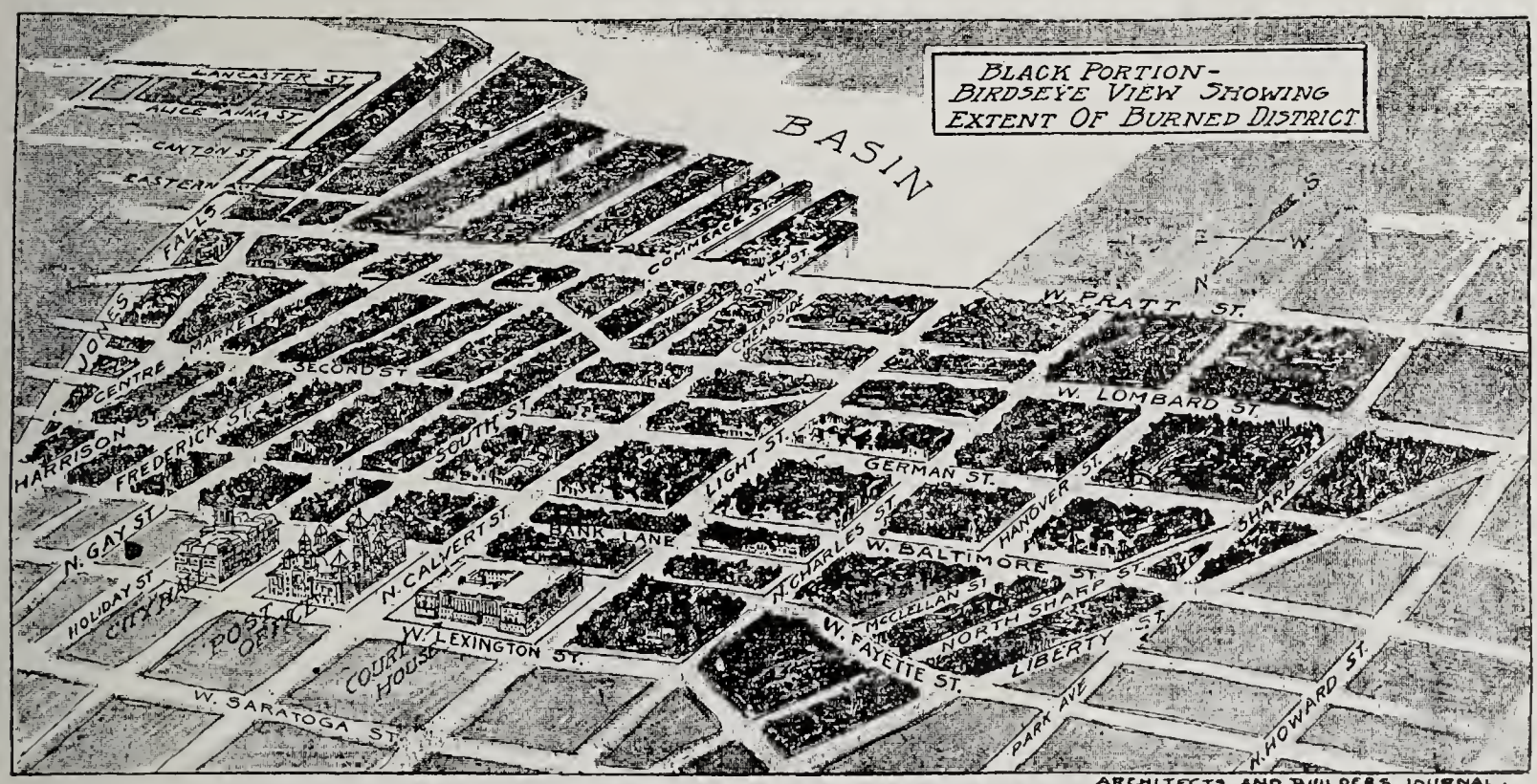
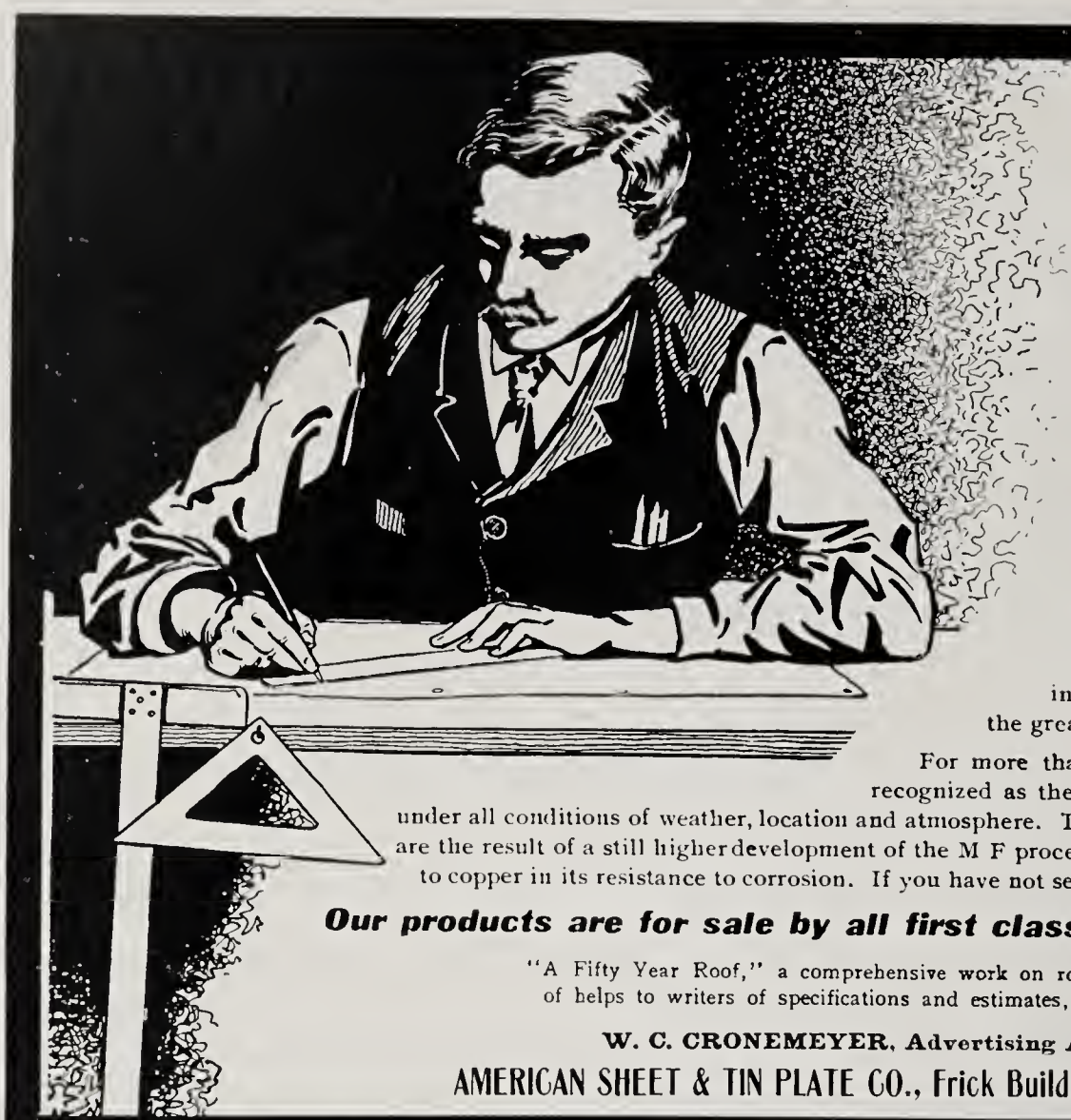


Map of that Portion of Baltimore Ravaged by the Conflagration that Started on Sunday, February 7, 1904.



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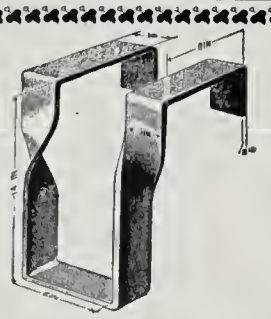

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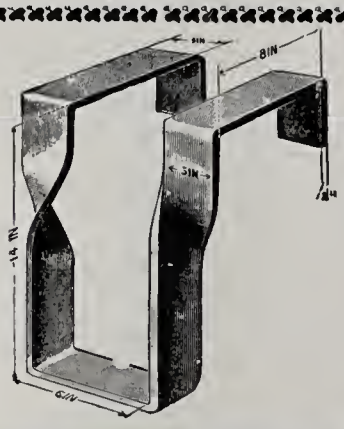

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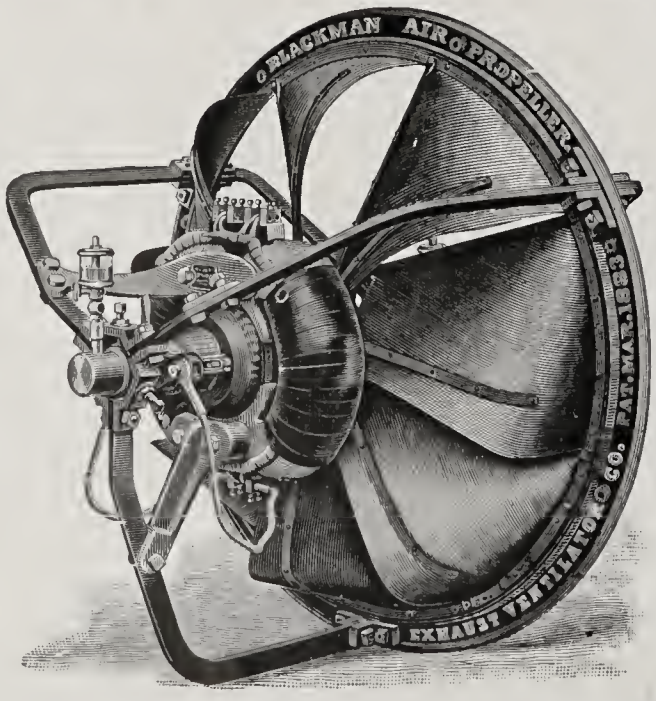

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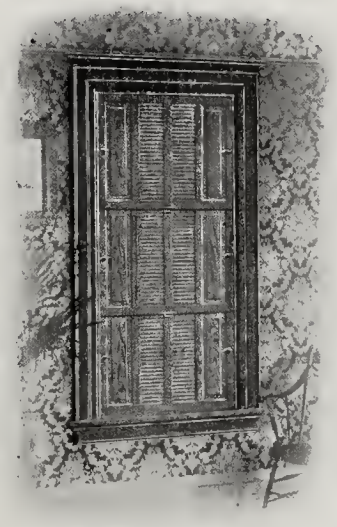

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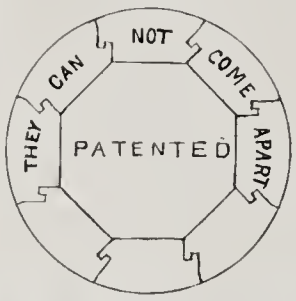

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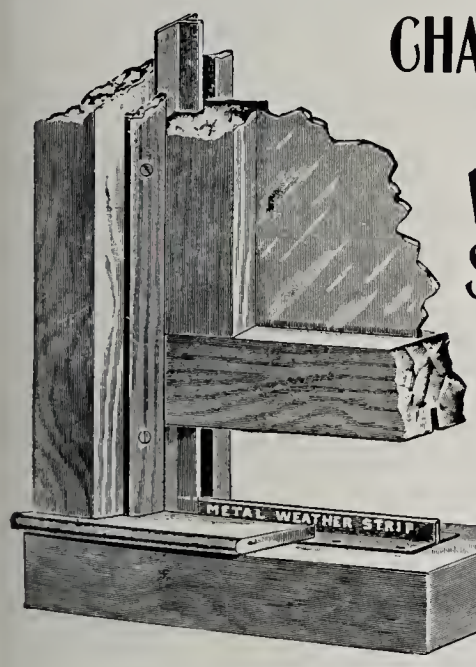

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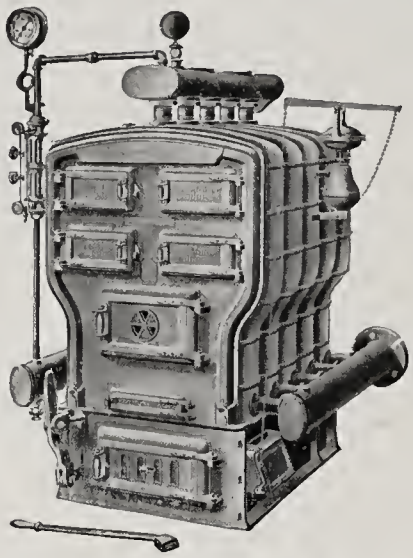

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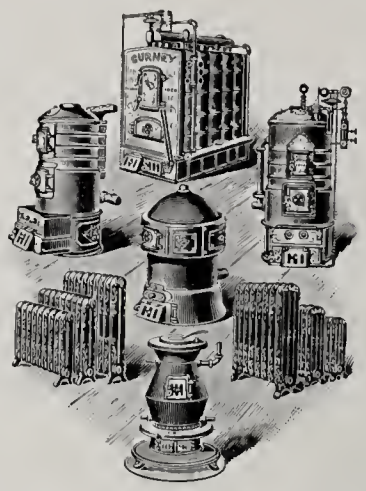

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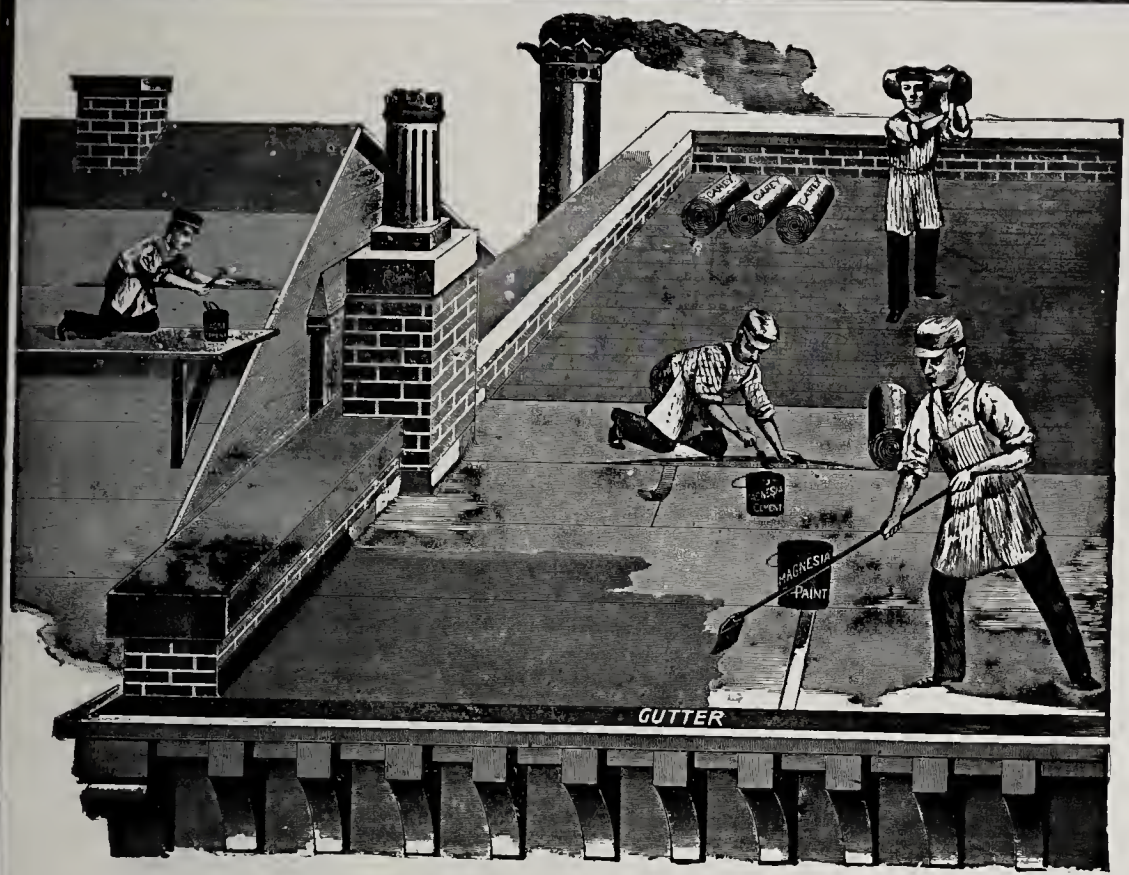

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A MODERN STYLE IN A VENEERD DOOR

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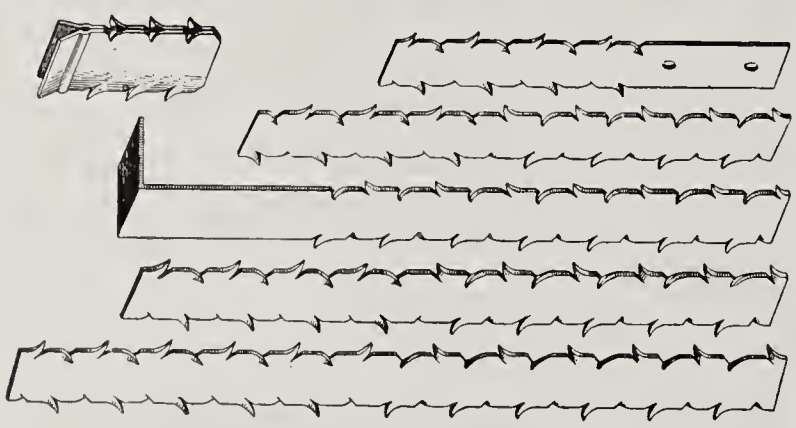

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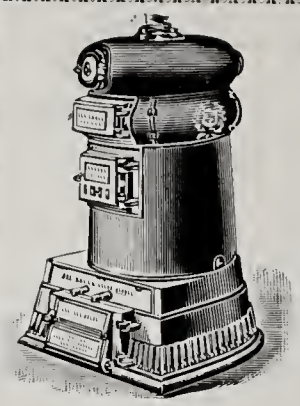

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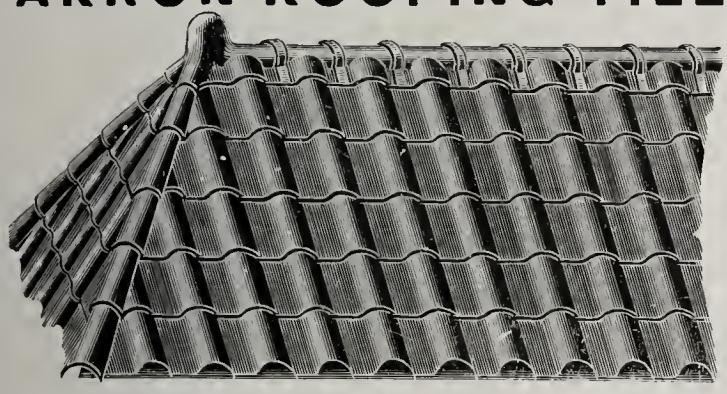

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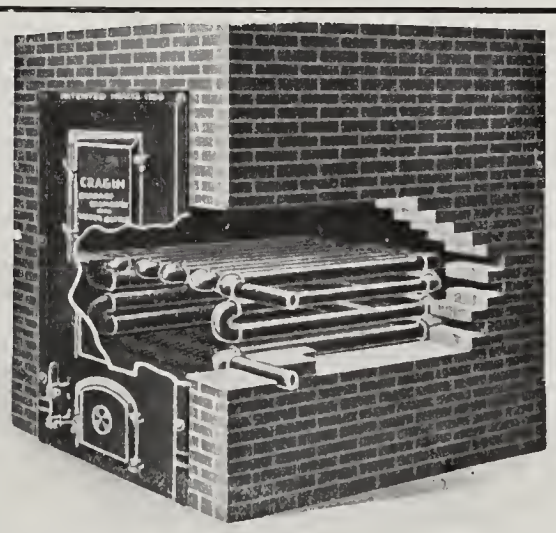

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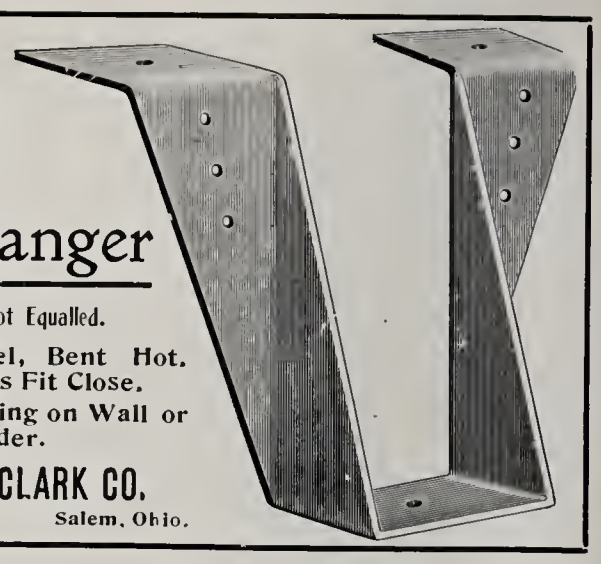

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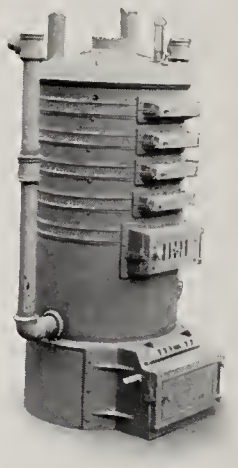

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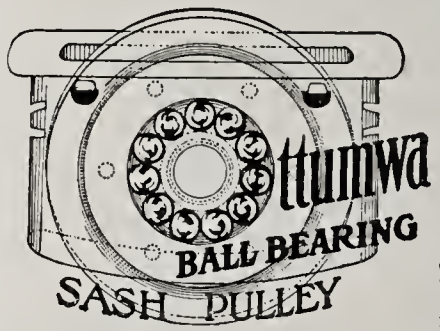

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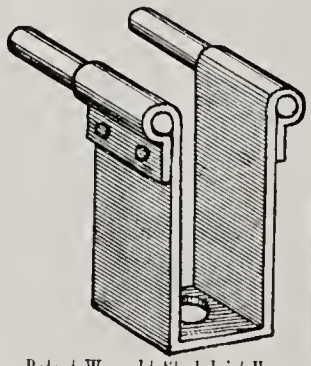

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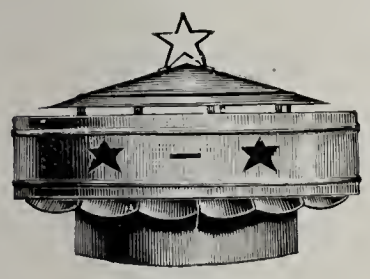

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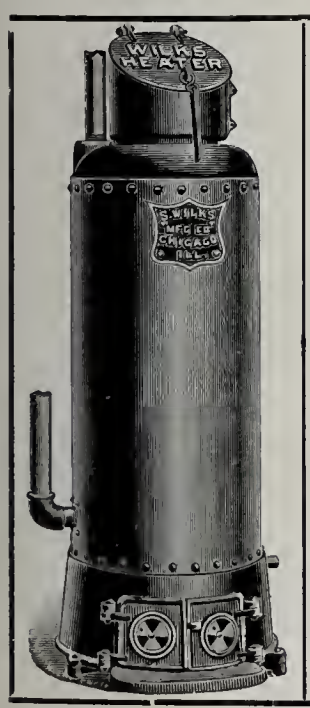

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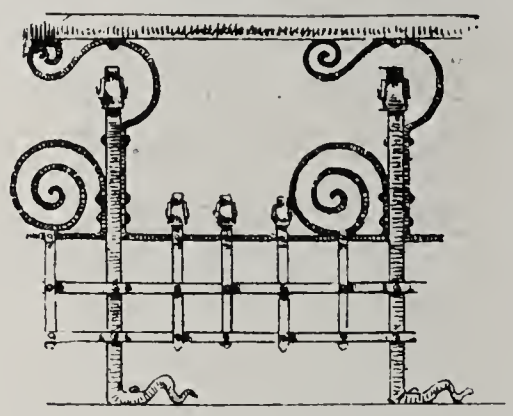

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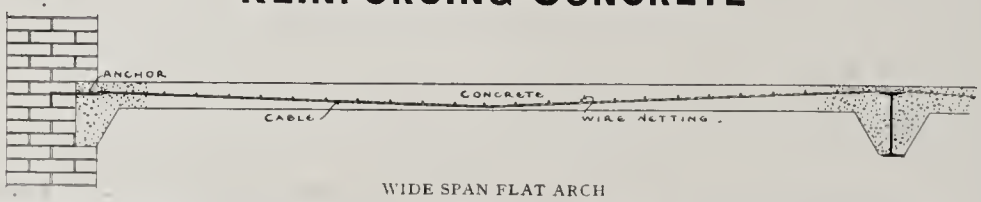

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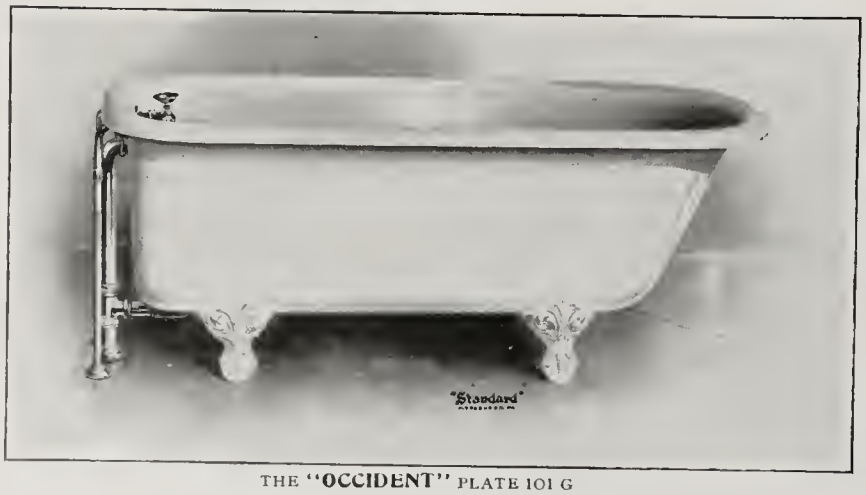

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NOTICE.

Although we have added four pages to the April number of the Western Architect, we are compelled to omit the page devoted to "classified list of advertisers for this issue."

HOLLOW terra cotta forms behaved so well in Baltimore that we are likely to hear less of competing constructions in partitions in the near future. When one recalls also the superior qualities of the tile partition in confining sound, it is hard to account for the successes scored, in selling, by some competing devices in the past. It is harder to account for the fuss and expense incurred in a great many constructions to prevent the passage of sound when a simple hollow tile construction would effect the purpose.

WORKMEN in the building trades are unexpectedly turbulent in New York, where everyone supposed they had had enough of strikes for a period. Elsewhere the season so far shows less unrest than usual, possibly because the length and strenuosity of the winter and high prices of food and fuel have uncovered the bottoms of too many domestic bins. Other signs of the times are seen in the acceptance of a wage reduction by coal miners and the rise in coal prices at retail reported at New York.

THE late exhibition of Whistler's works held in Boston by the Copley society was successful beyond the hopes of its promoters, who netted some $16,000 from the enterprise. The attendance was above 60,000, and included an unusually large proportion of art lovers, who came from all sorts of places, even as far away as Chicago. The out-of-town attendance on the last day, Sunday, was particularly noticeable, people coming in from some towns in what is described as delegations. The success of his last venture of the Copley society will make it still more the envy of like associations in larger cities, none of whom seem to be able to do things as these Boston people do.

EXTERIOR plastering is making headway more slowly in the West than its merits would lead one to expect. No doubt the many ill-advised experiments that have been followed by failure are largely accountable for this condition, yet there have been enough successes to warrant a more thorough study of the situation, and such study will be pretty sure to lead to further trial. As an outer covering for frame buildings there are many situations where plastering would be very suitable, and it is well to remember that suitable materials are much more easily obtained than formerly. Our grandfathers used to make splits in thin boards and spread them laterally till plaster could be forced into the cracks, making quite an uncertain hold. We can readily get metal sheets, split and spread so that when well stapled to boarding there is no mistake about the hold for mortar. These can be obtained dipped in asphaltum, and if the boarding is covered with suitable papers there should be little trouble about corroding laths or warping boards. We have Portland cements, which the grandfathers knew nothing of, and can make much better mortar than they if we set about it right. People with experience have an idea that good outside plastering can be done on wood according to these hints at a price that will meet siding and painting. Of course there need be no painting afterwards. Good masonry support for the plastering is still better, the plastering quickly paying for itself in saving of labor and select materials for facing the masonry. It appears also that Portland cements are now to be had that are far from disagreeable in color, while "rough casts" and the various kindred finishes have merits outside of mere novelty. In cold and hot, in wet and dry lands, exterior plastering has been successfully done for centuries, and there are those who dispute that it is a lost art.

BUILDING has become so highly developed and specialized that the cost of omitting work has become an important item in making estimates. Not long since a factory obtained a contract for furnishing the outer and inner wood finish of a chapel. Specifications for the outer work required that it be without "surfacing" or planing—as the saw left it. The office man who "billed" the work to the factory, took pains to mark all over the lists and drawings that the stuff was to be planed on the back side only—this to bring it to a proper thickness—and that all exposed surfaces were to be left as sawn. In due time, chancing to be in the warehouse, he saw stacked up ready for shipment all this outer finish fully dressed and planed, and of course it all had to be thrown away. It is safe to say that the next time the managers of the factory estimate on work in which the surfacing is to be omitted, they will add something to cover the chance of having to do the work over again.

THE text of a decision by Judge Seaman, of the U. S. Circuit Court of the Northern District of Illinois, is being largely circulated by the Maple Flooring Association, and aside from the fact that it denies the validity of the patent at issue, the evidence introduced to upset the claim of novelty and the efforts of the attorneys for the patentees to overcome the effect of this evidence are both interesting. Many western architects recall the first apearance of the IXL maple flooring and its immediate popularity. Soon end-matched flooring appeared on the market, and whatever may have been its merits, it took the fancy of purchasers so well that for a time it was sold for $1.00 per M., b. m. more than the same grades with simply squared ends. Although this end matching was patented, all makers soon adopted the method and shortly everything seen on the market was end-matched.

In a legal battle for collection of royalties by the patentee, the validity of the patent seems to have hinged on the novelty and value of the end-matching in enabling the boards to be laid directly upon joists without reference to having the end joints come directly over joists. Defendants, as a matter of course, attacked the value of the device for this use, which is uncommon at any rate, nearly all such flooring being laid on a lining of common boards. They also, in skirmishing for evidence to disprove the claim of novelty, found a floor of a church in Washington, Miss., probably built seventy years or more, made of pine boards, hand matched on sides and ends, joined and laid in all respects as described in the patent, and for the obvious purpose of saving the lumber that must have been wasted had joints been made only on joists.

The name of the builder of this had passed into oblivion, but evidence of the character of the work was disclosed by repairs made some ten years since, as well as by more recent changes. The patentees claimed that all this only showed that end matching was a lost art at the date of their patent, and therefore could not under the law detract from its validity; but his honor thought differently. This is probably not the end of the case, but there seems to be small likelihood that the free use of end-matched flooring on lining boards will be interfered with by patent.

MR. HEARST, the wicked Wm., appears to have opened a career for commerce commissioners. In all the years that the Interstate Commission has been in existence it has been unable to learn how it might learn about goings-on in the way of traffic agreements. Now that Mr. Hearst has pushed things up to the supreme court, that body, by a surprising majority, holds that public carriers doing business across state lines can be made to disclose their contracts. This practically settles the question as to traffic within states as well, for no one can imagine a state court as rendering a decision not in agreement with the U. S. courts in such matters. Lawyers probably foresee a bumper crop of litigation spring up as a result of this decision—plaintiffs everywhere who believe themselves to have been wronged by discriminating rates. May there be enough of them to frighten the common carrier into dealing justly in the future.

THE mild hysteria that came with the outbreak of the war, carrying some good people so far as the belief that we would all have to mix in before it is over, seems to have subsided. In place of this it begins to look as if the principals are not so glad as they were

Japan is announced as about to unleash the war correspondents, which may indicate that she is less sure of a crop of heroes than at the outset, or either of many things. As to Europe, aside from Russia there be both fresh experiences and cool heads to act as restrainers. The English have large bills yet to pay in connection with the late South African venture where they were obliged to send an army considerably more numerous than the entire population to be conquered. The German Kaiser has a throat to worry about, and a troublesome group of "socialists" in parliament. French socialists are credited with such political strength and such positive opposition to wars other than defensive, that the swashbucklers and contractors despair of being able to draw the country into the broil. Again, as outsiders learn just a little about the combatants, they find their sympathies lagging a bit. As motives are studied more, it becomes more difficult to keep the contractor out of sight, and to down the suspicion that the land grabbing instinct plays a large part. But to fight for land that is incredibly populous already! Are there no degrees of folly in this predatory business! Surely outsiders will not be drawn in in hope of any of the spoils now in sight. Except for the hopes excited in the patriotic breasts of shipbuilders, it does not look at this writing as though this war had in it much for the outside world. The rest of us may as well keep on devoting ourselves to the arts of peace.

Stone cutting machines are said to be at the bottom of more or less labor troubles. Doubtless their encroachments would be resented still more were the stone cutters more in position to "feel their oats." In fact, they are suffering from the competition of terra cotta far more than from the cutting machines. There is almost a tragic side to these whims of Fashion, who can shift her favors in a day, and leave a host of skilled men without employment, as was well shown by the suddenness with which terra cotta leapt into favor. Perhaps the best insurance that a skilled trade, like the stone cutters, can have against these disastrous changes of fashion or productive methods, lies in broader education. The skilled stonecutter who also makes such study of form as to give him a mastery of modeling, is likely to find demand for his services when other materials than stone are in favor. If he is not a stranger to the drawing board or to modeling clay, his chances for surviving these changes will be greatly improved.

It is to be hoped that a feature which insurance people seem to have entirely overlooked will have been sufficiently shown up by the Baltimore fire to bring about such an adjustment of rates as will bring the public to a somewhat more just appreciation of that modern enormity, the sky-scraper. Certain sins of the sky-scraper, such as its robbing the neighborhood of air and light, its causing an intolerable congestion of street traffic, its thrusting into the sky line vast masses of material, disposed on three sides perhaps to suit the purse and convenience of the owner, and composed on the fourth according to some half formed ideas of artistic effect, have been condoned for one reason or more. Sky-scrapers have been held to be the expression of great enterprise, drawing business, enhancing real estate prices and so on. Furthermore, there has been so much that was good about the construction of these buildings that they have been held to be a good fortification against spreading fires. Insurance people and all concerned seem to have lost sight of the fact that, while the sky-scraper is in many cases itself fireproof as to structure, it stores on a given ground area several times the combustibles gathered within the same area under conditions which preceded it. Not only does the twenty-story building contain five times as much furniture, flooring and fittings as the old five-story building on the same ground area, but most of these combustibles are above the reach of fire departments, and once under way, create a volume of heat hardly ever equaled within a like area under old conditions. This enormous heat cannot be "wet down;" it discharges itself at immense heights, in a way to spread flying cinders far and wide, and introduces a new element of terror into great conflagrations. The false sense of security for which the modern sky-scraper is responsible is so great that, almost without exception, its own windows have no fire protection. Will the Baltimore experience sufficiently awaken the building world to the necessity of fireproofing openings in outer walls of such buildings, or will the added experience of increased insurance rates be needed?

ENTRANCE TO ODEON BUILDING, ST. PAUL, MINN.
James Alan MacLeod, Architect, St. Paul.

HALL SEAT IN GERMAN RENNAISANCE STYLE FOR MRS. E. N. SAUNDERS, ST. PAUL, MINN.
Manufactured by Wm. Yungbauer, St. Paul, Minn.

DAVID R. FRANCIS, PRESIDENT,
Louisiana Purchase Exposition.

One of the most interesting exhibits at the St. Louis World's Fair will be that of municipal improvements and the model street. Albert Kelsey, who is in charge of the architectural details, has made each of the different buildings conform to a civic scheme, but not detract from their individuality. In short, there is to be a civic center where the best and latest improvements will be harmoniously exhibited. This is the first time in the history of international expositions that the special feature, in a separate space, of out-door municipal exhibits has been undertaken. The rapid advance and development of American cities within the past decade, and the great interest which is now being manifested by municipalities and the general public on the subject of city beautifying, have encouraged the Exposition authorities to believe that an object lesson, suggestive and practical, will meet a popular demand in this country, and be of great practical interest.

ADMINISTRATION BUILDING, LOUISIANA PURCHASE EXPOSITION.
Cope & Stewardson, Architects, Philadelphia, Pa.

NEW FLOORING MATERIAL.

By Henry M. Morgan.

Architect Siegwart, of Lucerne, has patented a new system of concrete flooring, consisting of hollow tubes of mortar and iron. It is fire-proof, and will, I believe, be of considerable interest to builders in the United States.

It is clamed that this system is an improvement on the inventions of Monnier, Hennebique, Koener, and others. It consists of manufacturing, in a factory, the mortar into hollow beams for forming a floor or roof ready for delivery to the builder—one which can be laid together on the supporting walls without planking. By this means one floor can be laid in a very short time, and the floor so laid can be used to work upon at once without scaffolding.

This appears to be a great advantage compared with the usual devices of stone, plaster, etc., which are dependent largely upon temperature and weather, and in all cases must be left for some days to dry before they can be walked upon.

One advantage claimed for the Siegwart system is that no workmen are required other than the ordinary laborers. Another fact which should be considered is that armored beams which are made in the building can be depended upon for uniformity when the mortar is mixed in exactly the same proportions and when it is not influenced by shocks, frost or rain during the time of setting. When this work is done in the factory it is easier to secure uniformity and protect the beams against weather conditions.

The beams manufactured at Lucerne have a uniform breadth of 25 centimeters (9.84 inches), and are manufactured in five sizes, viz., 9, 12, 15, 18, and 21 centimeters (3.5, 4.7, 5.9, 7.08 and 8.36 inches), high, according to the length of span and load. The size of iron rods in the beams is between 5 and 10 millimeters (1.96 and 3.0 inches), and generally six such rods are used in each beam. Two of these rods are laid parallel with the under border of the beam, and the other four are bent upward into the form of a knot at the ends in order to strengthen their holding power. The proportion of cement with coarse sand is 1 to 4. Though the beams are made hollow, they have the same supporting power as though they were solid, with a great reduction of weight. This is an important factor where freight charges are to be considered. The beams, being hollow, offer also more favorable conditions for heating. The sides are ridged, so that the cement for joining them together can enter into the vacant spaces and thus form a solid mass. The laying together of the beams is done exactly as with wooden beams.

The beams are supplied in different lengths. In Lucerne they are made up to 5.5 meters (18 feet) long; in Italy and Germany, up to 6.5 meters (21.3 feet) long; and in Russia, up to 7.5 meters (24.6 feet) long. They can be used, in addition to floors, for terraces, roofs, staircase supports, and for walls where there is a side pressure, as for instance, in coal bunkers, warehouses, etc. It has been demonstrated that with a load from four to five times as great as the normal the beams have only bent to the extent of one or two millimeters (0.0394 and 0.0788 inch).

The chief advantages claimed for these beams are: Great supporting power and security from fire; they come dry and hard from the factory and can, therefore, be used at once as floors for working on; greater facility and speed in building is secured by their use; freedom from excess of heat and cold by reason of their being hollow; thickness of completed floors is reduced by their use; the beams can be used as a heating floor by sending warm air through them.

The manufacture of the beams as practiced in the Siegwart beam factory in Lucerne, Switzerland, and in other European countries is very simple. They are manufactured in layers of 2.5 meters (8 feet) breadth and not singly. The hollow spaces are formed by means of iron molds, around which the cement is laid and the iron rods placed in position. These iron molds are constructed so that they can be reduced in size by the turning of a screw and withdrawn when the cement has become hard. The beams are cut, before the cement has set, by means of a patent cutting machine, and which can be placed in any position.

Six to eight hours after laying the beams the iron molds can be withdrawn, but they are generally left to harden for four to six days before they are separated. After two or three weeks they are ready for delivery.

There are already a large number of buildings, both public and private, in Switzerland, in which the Siegwart beams have been employed, and in all the buildings now in course of construction in Lucerne they are being used.

At present there are three factories in Germany, three in Russia and one in Italy occupied in manufacturing beams under the Siegwart patent.—Architect and Builder's Journal.

One of the most frequent dangers arising from want of care is that which results from leaving the plumbing apparatus unused for several weeks or months, as when the family shuts up the house for the summer and goes to some health resort. In a few weeks, sometimes in two weeks, the water in the traps so far evaporates that they are unscaled, and then follows a stream of air into the house, bearing with it micro-organisms which gradually settle in the layer of fine dust which gathers on floors, shelves, over doors, gas fixtures, etc. If, now, the family returns and occupies the house, using only the ordinary processes of sweeping, dusting, etc., which do not destroy the germs, but merely scatter them about, there is serious danger of sickness. On leaving a house in this way, arrangements should be made to have every fixture in it flushed at least once a week, and if it be necessary to move into a house which has been for some time unoccupied, and where you are not sure that these precautions have not been observed, then thorough cleansing with cloths wetted with disinfectant solutions should be employed as a matter of ordinary prudence, and should be applied to every exposed surface.

COUNCIL TABLE, IN MINNEAPOLIS COMMERCIAL CLUB.
Designed and Executed by L. A. McIvor, Minneapolis, Minn.

FLOWERS IN WASTE PLACES.

You can grow flowers anywhere, if you only know the proper kind for each location, says Country Life in America. There is no portion of the earth's surface that cannot be covered by some kind of plant growth, nor a situation so desperate that it could not be redeemed with the life and cheer and color that flowers give. You have only to select the right variety of seed and you will find that there is no clay too tough, no sand too hot and dry, no rocks too devoid of soil, no winter too severe. If you have a swamp and are afraid of it, you can transform it into a water-lily pond or a bog garden. If you own a bit of woods you can fill it with wild-flowers. In the heart of the biggest city a ten-inch hole can be made in the pavement, as they do in Boston, to cover the wall of the house with vines. The slums have their window-boxes, and houseleeks grow upon the shingles of a roof. Even the dump-heap that you pass daily need not be an eye-sore. Put a package of sunflower, poppy or morning-glory seed in your pocket, and scatter the seed over the offending spot. And of all the people who enjoy the transformation, you will enjoy it most.

A BUILDING WITHOUT WINDOWS.

It is stated that the Belgian national pavilion at the coming World's Fair in St. Louis is the largest building in the world without a window. The absence of windows was deliberately planned by Gustav Chartrain, the architect, to secure an even distribution of softened sunlight.

"Windows let in a blinding blaze of light and the intervals between them are dark," says Mr. Chartrain. "We have avoided this by omitting the windows and constructing the central section of the arched roof, extending the entire length of the building, of stained cathedral glass, which will let in abundant light."

The pavilion is 267 feet long and 191 feet wide. It is 55 feet high in the center of the great arched roof, and the great dome in the center is 100 feet high. The glass section in the top of the roof is 20 feet wide. It is a yellowish brown, and the soft light cast through the interior increases the beauty of the finishings and decorations.

Great arched entrances on all sides make up for the absence of windows in the exterior appearance.

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POST OFFICE BUILDING AT SLEEPY EYE, MINN.
A. F. Gauger, Architect, St. Paul, Minn.

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HALF-TONE PERSPECTIVE FROM WATER COLOR.
Turner & Koch, Architects.

F. L. Lively, Colorist

An unlooked for sequence in the drainage of New Orleans is the appearance of hordes of ants which have become as threatening as the plagues of Egypt They attack the woodwork of houses and speedily destroy it, making their way into warehouses where costly goods are stored, and seem to be immune to insecticides. The presence of them in such quantities is said to be caused by the drying out of the soil. When it was saturated the ants could not breed in it; now that it is no longer wet the ants have multiplied in such numbers that they defy suppression. One gentleman is said to have been literally eaten out of house and home, the ants having tunneled the timbers in all directions so that nothing but a shell was left. Creosoted wood seems to be a preventive against the marauding insects, and many establishments have been started on such work.—National Builder.

A Japanese house is the simplest thing in the world, consisting as it does of a post at each corner and a roof One may say it is all on one floor. And in the daytime it is all one room, if it is a small house. The number of bedrooms in it depends on the number of bedrooms the owner requires. They are divided by night by paper shutters fixed in grooves like the divisions of an old-fashioned workbox. There are no doors or passages. Your bedroom acts as a passage, and when you want a door you slide back the nearest panel. Two sets of shutters go around the outside. These outside shutters cannot be slid in the same promiscuous fashion as the other. Each is held in its place by the next and the last one is secured with a bolt of wood. There are plenty of Japanese houses which when secured for the night would hardly stand a drunken man leaning against them. An Englishman's house may be his castle—a Japanese house is his bedroom, and his bedroom a passage.

CAST IRON COLUMNS.

BY C. A. P. TURNER, M. AM. SOC. C. E.

The recent collapse of the Darlington building in New York city may perhaps render interesting and fitting a short discussion of the suitability of cast-iron columns in buildings and the proper methods of proportioning them, together with a few practical hints on strength and correct proportions of bracket connections.

In the following remarks the writer will say frankly that there is little offered that is new, but as the facts are on record in engineering rather than architectural literature, they may be none too familiar to the busy members of the profession.

To the structural engineer familiar with these facts, failures, such as that of the Darlington building and the earlier one of the Ireland building, are surprising, not from the fact that they have occurred in structures admittedly figured under authorized municipal building laws of New York city, but that similar failures have not been more frequent in view of the fictitious values assigned to the crushing strength of cast-iron columns, which renders the actual factor of safety less than fifty per cent of what it is supposed to be.

We quote herewith Mr. Ewing's report of tests for the building department of New York city and present the data in the compact form given by the Engineering News, January, 1898, to which we would refer our readers.

TABLE III.—RESULTS OF BREAKING TESTS OF CAST-IRON COLUMNS.

Column No.	Length	Outside Diameter	Thickness			Location of Break	Breaking load, lbs.	Compression	Character of Material at Fracture	Remarks	Sectional area sq. in.	Breaking load per sq. in. of area, lbs.
			Maximum	Least	Average							
I	190¼ in.	15 in.	1	1	1	About 3 ft. 4 in. from bottom.	1,356,000	.....	Medium grain, blow holes and dirt.	One place foundry dirt extended half way through; another place foundry dirt and honey comb between inner and outer surface.	43.98	30,800
II	190¼ in.	15 in.	1 5/16	1	1 1/8	Bet. 1 and 5 in. from bottom.	1,330,000	.....	Medium grain; fairly unfirm, spots fdry dirt.	At a pressure of 1,302,000 a slip of some kind occurred, which dropped the pressure to 1,275,000; again run up until break occurred. Upper portion sprung ½-in. in 9 ft. 4 in.	48.03	27,700
B 2	190¼ in.	15 in.	1¼	1	1 1/8	Bet. 3¾ ft. from bot'm and 6½ ft. from top.	1,198,000	2½ in. bet. 150,000 and 1,108 000.	Coarse but uniform; a few flaws.	At 1,108,000 column sprung badly, Fig. C; movement recorded under compression.	48.03	24,900
B 4	190¼ in.	15 in.	1 7/32	1	1 1/8	Bet. bottom and one-third up from bot'm.	1,246,000	2¼ in. bet. 150,000 and 1,246,000.	Coarse in center; finer on outside; cinders and slag.	Bad spots, cylinder pockets and blow holes near middle of column; small cracks in necking near top; column given a permanent set.	49.48	25,200
5	190¼ in.	15 in.	1 11/16	1	1 11/64	At bottom flange.	1,632.500	2 5/16 in. in 8 ft. 3 in.	Fine grain and unif'm where no flaws occurred.	Flaws and foundry dirt at point of break; load was carried as high as 1,804,000. The dummy head against which column rested was found broken after the test; this may have had something to do with character of break.	50.84	32,100
6	190¼ in.	15 in.	1¼	1 1/8	1 3/16	No break permanent set of 1 3-16 ins. in 8 ft.	Over 2,082,000	⅜-in. bet 232,000 and 1,108 000.	No break.	Pressure run up to 1,108,000 and released. It was again run up to 2,082.000 released and run up to 2,033,000. Column could not be broken; capacity machine reached.	51.52	Over 40,000
XVI	160 in.	Bet. 8¼ and 7¾ in.	1¼	⅝	1	Where chaplet was placed at middle, and at ends.	651,000	.....	Metal good; med'm gr'n	At time of breaking, column had a vertical deflection of 3 9-16 in. and a horizontal deflection of 1½ in.; fracture seemed due to flexture.	21 99	31,900
XVII	160 in.	8 in.	1 3/32	1	1 3/64	At middle and at ends	612,800	.....	Fine grain unif'm and free from flaws.	Vertical deflection, 4¼ in. horizontal deflection, 1 11-32 in.	22.87	26,800
7	120 in.	6 1-16 in.	1 5/32	1 1/8	1 9/64	At middle and at each end.	400,000	.....	Good even grain no flaws.	Vertical deflection, 3 in.; horizontal deflection, ⅞-in.	17.64	22,700
8	120 in.	6 3-32 in.	1 1/8	1 1/16	1 7/64	At middle and at each end.	455,200	.....	Fine grain unif'm and free from flaws.	Vertical deflection 3¼ in. horizontal deflection, 1 11-32 in.	17.37	26,300

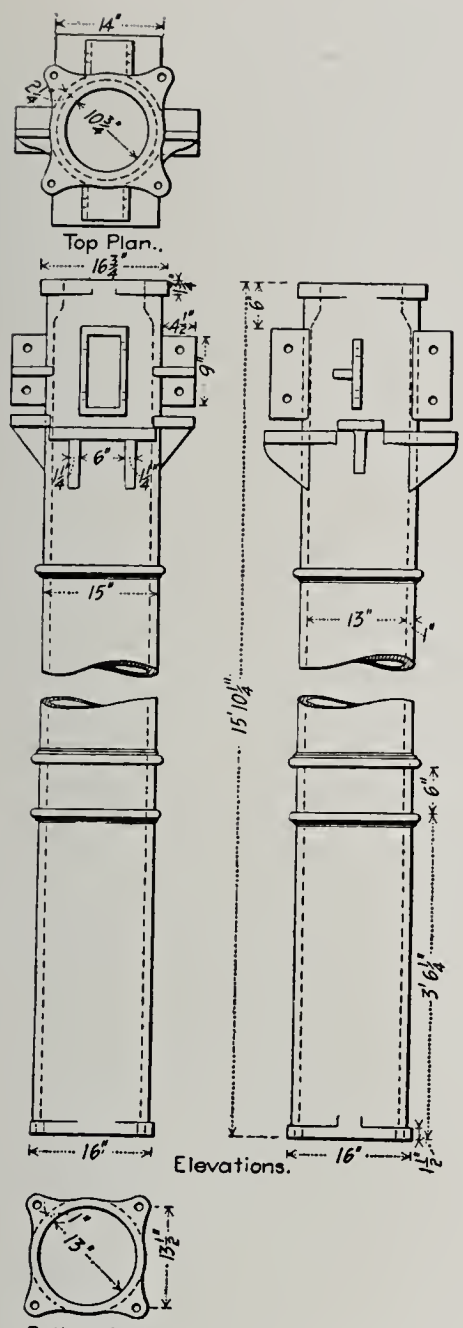


Fig. 4.—Details of the 15-in. Columns.

Column I.—Column suddenly broke under a total load of 1,356,000 lbs. into 10 pieces; the fractured surface began about 3 ft. 4 ins. (average) from the bottom.

The quality of metal was medium grain; foundry dirt and blowholes were quite numerous; in one place the foundry dirt extended half way through the metal; in another place, there was a thin layer of foundry dirt and honeycomb midway between the inner and outer surfaces; between this layer and the two surfaces, the metal was perfectly sound; this layer of foundry dirt contributed to the weakness of the column as was evident from an inspection of the fractured surface.

The column sheared at an angle of about 30 degrees with an element of the surface, and about 45 degrees with a normal to the surface, inside of the layer of foundry dirt, above referred to only. This layer of foundry dirt extended about 6 ins. around (circumference) on column. At another fractured surface there was no defects occurred, the metal sheared along a spiral course about 45 degrees with an element of the surface, and at an angle of 45 degrees with a normal to the surface; this surface was about 15 inches long.

Column II.—The column crushed near the lower end, many of the pieces being quite small; the bottom flange was left intact, the fractured surface beginning at the top of the flange or 1¾ inches from the faced end of the column and extending around the shaft in an irregular manner reaching 5 inches away from bottom flange in one place.

The shaft of the column above the fractured portion was found to be permanently sprung ½-inch in a distance of 9

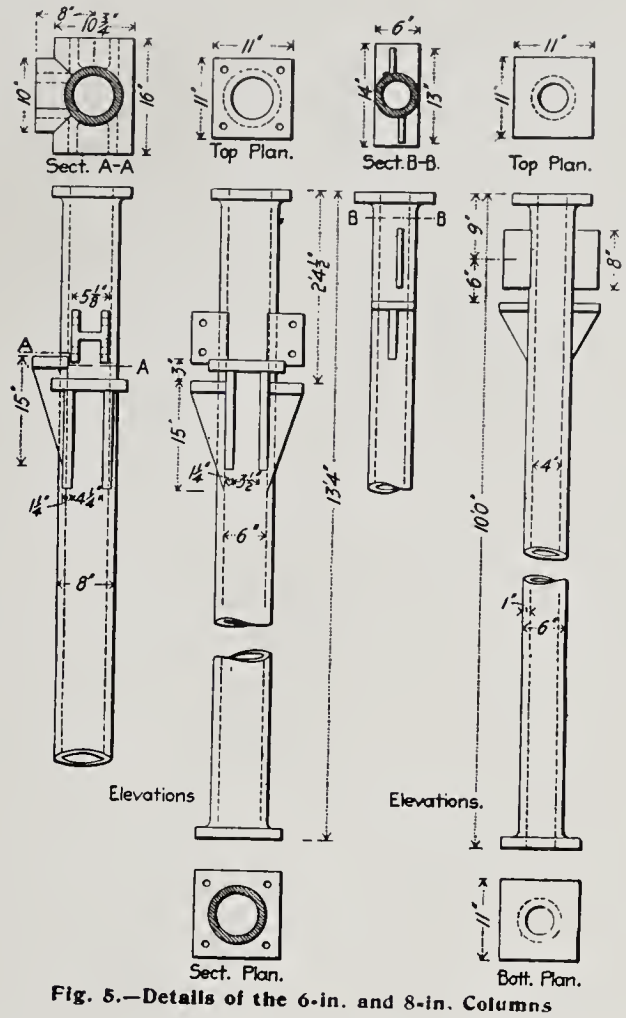


Fig. 5.—Details of the 6-in. and 8-in. Columns

feet 4 inches along shaft. The quality of metal at bottom of column, where fracture occurred, was medium grain and quite uniform in grain. Considerable quantities of foundry dirt was found at fractured surfaces and where the column crushed into small pieces, the foundry dirt extended all the way through in many spots.

The shaft sheared in several places at an angle of about 45 degrees to the elements of the surface of the column parallel with its axis, the fractured surface following a sort of spiral path around the shaft. The metal at the same time sheared through at an angle of from 30 to 45 degrees with a normal to the surface of column.

Column B 2.—The fractured portion of column was below the center, beginning 3 feet 9 inches from bottom and 6 feet 6 inches from top of column.

Quality of metal, rather coarse, but quite uniform. Flaws occurred in spots, but not bad. There was evidence of shear at 45 degrees, the same as in preceding columns.

Column B 4 (Fig. 6)—The quality of metal was rather coarse in center of shell, and somewhat finer toward the surfaces. Cinders and slag in considerable quantity, two bad spots nearly opposite at bottom of column where metal was poor; one of these was 5 inches long on outside (around column) and extending about half way through the metal. On the opposite side the defective portion was 4 inches wide on inside, and extended for one-third to two-thirds the way through the metal. There was indications of shear at about 45 degrees, similar to cases previously noted, at the bottom, where the column broke into small pieces.

The total number of pieces was 15.

The fractured surfaces revealed many cinder pockets and blowholes near middle of column. Small cracks were observed in the necking near top of column.

Column 5 (Fig. 7)—Column broke into 14 pieces; all fractures occurred below the lower necking on column and broke through bottom flange. The permanent set in the shaft between the upper and lower necking was 2 5-16 inches in 8 feet 3 inches; the upper part of the shaft above the necking remained perfectly straight after the test. Flaws were found

in fractured surface near bottom, of foundry dirt. One bad flaw about 5 inches wide and 4 inches high (long) on outside extending three-fifths of the way through.

Quality of metal was rather fine grain, and very uniform where no flaws occurred. Part of the shaft remained intact to end, and part of the flange was left on. After the test, it was found that a dummy head against which the end of the column bore, was broken in such a way that the load on the column was eccentric after the head gave out; the nature of the fracture sustains this belief.

Column 6.—The test was discontinued when a load of 2,033,000 pounds had been reached, the capacity of the machine having been reached. The permanent set of the column after it was removed from the testing machine was 13-16 inch in a length of 8 feet 5 inches. The concave side ,after the test, was about 90 degrees from the joints of the flack, and undoubtedly was the top of the column as cast in the mold.

Column XVI.—One fracture occurred at a point where the chaplet for holding down the core was imbedded into the metal of the column. The metal outside of the chaplet was ⅞-inch thick, and the chaplet 3-16 inch metal. The cast metal did not adhere to the chaplet.

The column broke into 6 pieces (at middle and at each end). The fracture at the middle was nearly squared off, and very near the exact middle point between the two ends. The fractures were about 1 foot from each end and irregular in outline.

The metal was good, of medium grain. Wires were attached to the shaft of the column, 6 feet 6 inches from bottom, and ran perpendicularly to the axis of the column, one horizontally and one vertically. These were carried to the outside of the building in which the tests were being made, and the actual vertical and horizontal deflections of the column were observed in conjunction with the corresponding loads.

There was no evidence of shear at the fractured surfaces, as in the case of the larger columns. Failure seemed to result primarily from flexure.

Column XVII.—The column broke into 8 pieces, the fractured points being at the middle and near each end.

Quality of metal at fractured surfaces was fine grain, uniform and free from flaws.

Column 7 (Fig. 8) was broken into four pieces, the fractures being 3 inches to one side of the middle of the column and near each end. The quality of the metal was good, even medium grain, with no flaws.

Column 8.—The quality of metal was fine grain, uniform and free from flaws. The column broke into four pieces, fractures being at middle and near ends; broke off nearly square at each point; no signs of shear in metal.

Two of the 15-inch columns tested, Nos. B 2 and B 4, were taken from the Ireland Building, which, it will be remembered, collapsed Aug. 8, 1895 (Eng. News, Aug. 15, 22, 29, Sept. 5, Oct. 3, 1895). The four remaining 15-inch columns were made from drawings prepared by the Department of Buildings of New York city (Fig. 4), and were as nearly as possible duplicates of the Ireland columns.

The columns marked I. and II. were made by the Jackson Iron Works, 27th street and East River, New York city, of their ordinary run of metal. They were cast while other columns were being cast, with no knowledge of their ultimate use. The two marked 5 and 6 were made by the Healy Iron Works, Brooklyn, N. Y., who were informed of what the columns were wanted for. The drawings for the 6-inch and 8-inch columns (Fig. 5) were also made by the Department.

All the columns broken were, we understand, fair samples of the average cast-iron columns used in buildings in New York city, and regularly passed by the Building Department as coming within the provisions of the law.

The Building Law of the City of New York says:

The strength of all columns and posts shall be computed according to Gordon's formulae, and the crushing weights in pounds, to the square inch of section, for the following materials shall be taken as the coefficient in said formulae, namely: Cast-iron, 80,000. . . . The factors of safety shall be as one to four for all posts, columns and other vertical supports when of wrought-iron or rolled steel, and as one to five for other materials, subject to a compressive strain.

Applying Gordon's formula, as used by the building department:

$$S \text{ (breaking strength)} = \frac{80{,}000\ a}{1 + \frac{L^2}{400\ d^2}}$$

"a" being area of section, "d" the exterior diameter in inches, and "l" the length of the column in inches, and we have for the columns of these tests a calculated breaking strength per square inch for the fifteen inch columns of 57,140 pounds, and 40,000 pounds for the six and eight inch columns. Now this calculated strength of columns B2 and B4 is 128 per cent more than the actual, their factor of safety supposed to be five by the New York building law, or six by the Minneapolis ordinance, is in reality only 2.2 under the former and 2.6 under the latter ordinance, and this under central loading only, no account being taken of the likelihood of eccentric loading.

Lanza applied mechanics (page 372) quotes from fourteen tests of cast-iron mill columns at Watertown, 1887-'88, crushing strength ranging from 25,000 to 63,000 pounds per square inch, and exhibiting no definite relation between unit crushing strength and dimensions of columns. He considers 25,000 to 30,000 pounds per square inch the maximum ultimate strength we can safely rely on, and with this recommends a factor of safety of from five to six, limiting the length of the column to twenty diameters, with thickness sufficient to secure a sound casting. Further increase to be made for eccentric loading. W. H. Burr, Eng. News, June, 1898, expresses similar views.

Such criticism of working stresses naturally raises the question as to the basis or data from which the formula is derived. The experiments of Hodgkinson upon iron differing materially from that used as structural cast-iron to-day, forms this basis. To quote Mr. Kent (Mech. Engrs. Pocket Book, page 250): "Modern cast-iron columns such as are used in the construction of buildings are very different in size, proportions and quality of iron from the slender pillars used in the Hodgkinson experiments. There is usually no check by actual tests or by disinterested inspection upon the quality of the material; the tensile, compressive and transverse strength of cast-iron varies through a great range (the tensile strength ranging from less than 10,000 to over 40,000 pounds per square inch), with variations in the chemical composition of the iron according to laws as yet very imperfectly understood, and with variations in the methods of melting and casting. There is also a wide variation in the strength of the same melt when cast in bars of different thicknesses. It is, therefore, impossible to predict, from the data given by Hodgkinson, of the strength of columns of Low Moor iron in pillars seven

and a half feet long, two inches diameter, and one-third of an inch thick, what will be the strength of a column of American cast iron, quality not stated, in a column sixteen feet long, twelve to fifteen inches in diameter and three-quarters to one and a half inches thick."

Another difficulty in formulating a safe rule for the design of cast-iron columns is due to the danger of hidden defects in the material, such as internal stresses, due to unequal cooling, cinder or dirt blowholes, cold shuts and cracks on inner surface, which cannot be detected by external inspection.

Cylindrical columns are less liable to internal cooling stress than square and are to be preferred for that reason.

Variations in thickness, due to rising of core during casting, is a common defect determined only by drilling.

Bearing in mind the fact that the factor of safety in these columns is or may be but 2.2 under a perfectly central load, and that the loading from brackets is nearly always eccentric, and adding the bending stress above noted, and it is evident that the erector may, by the slightest misjudgment, overload an inherently weak frame, and loss of life result. The responsibility evidently should rest, not with the erector, but with the designer figuring and specifying the dangerous construction.

When the walls are of suitable thickness, or the extreme width of building sufficient to give reasonable stability, the above criticism does not apply with equal force where columns are suitably proportioned.

Taking up now the subject of "Brackets," we will first present the reports of Ewing, which we copy from the Eng. News before referred to:

RUINS OF DARLINGTON BUILDING, SHOWING BROKEN CAST IRON COLUMS.
From Carpentry and Building.

Referring now to the type represented in the Darlington building of skeleton construction, in which the erector in pushing work with an energy that would seem most commendable, were it not for the unfortunate result, carries up two or more tiers in advance of the curtain walls, connects the frame by the few bolts provided through cast lugs or flanges for splicing sections of columns, and superimposes a load perhaps fifty per cent greater than the figured safe load on the columns, and the column is subject to the vibratory stresses due to wind and the handling and moving of parts in erection.

Fig. 14.—Fracture of Brackets, 14-in. Colums, No. 6.

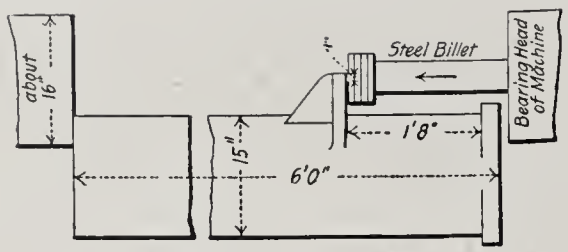


Fig 1.—Manner of Applying Loads to Brackets.

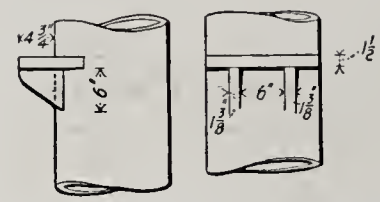


Fig. 2.—Tests Nos. 1, 6, 21, 22.

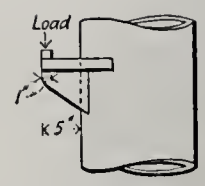


Fig. 3.—Test No 2 Showing Manner of Application of Load.

TABLE I.—RESULTS OF TESTS OF BRACKETS ON CAST-IRON CLUMNS.

No. of Test	Dimensions as in Figure	Column number and Diameter	Bracket for Girder or Beam	Load Distributed as in Fig. 5, or at end, as in Fig. 3.	Breaking Load, lbs.	Area of fractured surface above bot'm of shelf,* sq. in.	Thiceness of metal in column, top of shelf
1	No. 2	II., 15 ins.	Girder.	Unequally Distributed.‡	363,000	20.15	1 1-16 ins.
2	" 3	" "	"	End.	153,500	20.88	.....
3	" 4	" "	Beam (small)	Distributed.	133,700	10.	.....
4	" 6	" "	" "	End.	99,800	8.25	1 1-16 ins.
5	" 2	I., 15 ins.	Girder.	Distributed.	267,300	21.	.....
6	" 2	" "	"	End.	146,800	21.	.....
7	" 4	" "	Beam (small).	Distributed.	131,000	8 61	.....
8	" 4	" "	" "	End.	49,140	8 3	.....
9	" 7	B 2, 15 ins.	Girder.	Distributed.	233,000	27.19	.....
10	" 7	" "	"	End.	133,700	23.07	.....
11	" 7	" "	Beam (small).	Distributed.	114,600	Not meas. †	.....
12	" 7	" "	" "	End.	49,100§	Not meas.	.....
13	" 7	B 4, 15 ins.	Girder.	Distributed.	252,500	18.	1⅛ ins.
14	" 8	" "	"	End.	141,800	21.14	1⅛ ins.
15	" 9	XVI,, 8 ins.	.....	Distributed.	335,700	Not meas.	1 3-16 ins.
16	" 9	XVII., 8 ins.	.....	End.	131,000	Not meas.	1 1-16 ins.
17	" 10	No. 7, 6 ins.	.....	Distributed.	142,000	20.3*	.....
18	" 10	No. 7, 6 ins.	.....	End.	69,800	Not meas.	.....
19	" 10	No. 8, 6 ins.	.....	Distributed.	122,800	20.9*	.....
20	" 10	No. 8, 6 ins.	.....	End.	72,900	Not meas.	.....
21	" 2	No. 6, 15 ins.	Girder.	Distributed.	159,300	27.9	.....
22	" 2	No. 6, 15 ins.	"	End.	95,500	26.2	.....

*The area of fracture measured was the entire developed area of fracture which lay above the plane of the bottom of the shelf, this portion of the fracture being supposed to have taken place by the tension shearing. The fractured area below this plane was not measured. in tests Nos. 17 and 19 the fracture took place by shearing parallel to the axis of the column, and the area measured is the whole area sheared.

‡Greater near the shaft.

†This bracket broke in a peculiar manner, taking out a piece of the column shaft above the bracket, 4½ in. wide (average) by 11 in. high

§No. 12.—The figure 49,100 does not indicate the strength of the bracket, es tee column had been weakened by the tearing out of the other three brackets.

TABLE II.—STRENGTH OF CAST IRON BRACKETS, COMPUTED FROM TESTS.

No. of test	Breaking load, lbs.	Area of fracture ab've bot'm shelf A, sq. ins.	Area of vertical section of brackets: Shelf B, sq. ins.	below shelf sq. ins.	Total C, sq. ins.	Load per sq. ins. of Area Approximate: A, lbs.	B, lbs.	C, lbs.	Load on end—E, or distributed—D
1	363,000	20.15	22.5	16.5	39	16,100	16,100	9 300	D.
2	153,500	20.88	22.5	16.5	39	7,000	7,000	3,900	E.
3	133,700	10.	7.5	6.2	13.7	13,400	17,700	9,800	D.
4	99,800	8.25	7.5	5.6	13.1	8,400	9,200	5,300	E.
5	267,305	21.	22.5	16.5	39	12 700	11,900	6 900	D.
6	146,800	21.	22.5	16.5	39	7,000	6,500	3,700	E.
7	131,000	8.61	7.5	6.2	13.7	15 200	17,500	9,600	D.
8	49,140	8.3	7.5	6.2	13.7	5,900	6,600	3,600	E.
9	233,000	28.19	21.	15	36	8,200	11,100	6,500	D.
10	133,700	23.07	21.	15	36	5,800	6,400	3,700	E.
11	114,600	Not given	—	—	—	—	—	—	—
12	49,100	" "	—	—	—	—	—	—	—
13	252,500	18.	21.	15.7	36.7	14 000	12 200	6,900	D.
14	141,800	21.14	20.7	13.8	34.5	6,700	6,900	4,100	E.
15	335,900	.....	16.6	33.8	50.4	.....	20,200	6,700	D
16	131,000	Not giv'n	—	—	—	—	—	—	—
17	142,000	20.3[2]	6	7	13	7,000[3]	23,700	10,900	D.
18	69,800	.....	6	7	13	.....	11,600	5,400	E.
19	122,800	20.9[2]	6	7	13	5 900[3]	20,500	9,400	D.
20	72,900	.....	6	7	13	.....	12,100	5,600	E.
21	159,300	27.9	22.5	16 5	39	5,700	7,100	4,100	D.
22	95,500	26.2	22.5	16.5	39	3,600	4,200	2,450	E.

[1] Nos. 17, 18, 19 and 20, that is, all the brackets in 6-in. columns, broke by shearing through the metal of the bracket.

[2] Sheared areas.

[3] Breaking load per sq. in. of sheared area.

Fig. 12.—Fracture of Brackets on 8-in Columns, XVI and VII..

No. 1.—The fracture tore out the main body of the column for a depth of about 6 inches, and width of about 8 inches. The angle of fractured surface with the surface of shelf at center of shelf was about 15 degrees; angle of inner lines of brackets about 45 degrees; angle at edges of shelf about 90 degrees. Metal rather coarse, especially where it cooled slowest.

No. 2.—Metal broke off squarely at edges of bracket at an angle of about 30 degrees, with the surface of the shelf at the center of the shelf; between the center and the two edges the angle of fracture varied between 30 and 90 degrees at intermediate points. Bracket tore out from the column in the same way as No. 1. Quality of metal same as No. 1.

No. 3.—Bracket tore out part of the shelf, leaving approximately, a round hole. Fracture surface at center of shelf made an angle of about 10 degrees with surface of shelf, this increasing each way to about 45 degrees with the shelf at the edges of shelf.

Fig. 11.—Fracture of Brackets on 15-in. Columns, B2, I and II.

No. 4.—Tore through only a small hole in the column. Angle of fracture of the middle of shelf about 45 degrees to the shelf surface and increased gradually to 90 degrees at edges of shelf. Metal uniform, flawless, coarse medium.

No. 5.—Angle of fracture at middle of shelf 20 degrees with shelf surface; angle at sides 90 degrees, and on line of outside of brackets 45 degrees. Metal medium grain, uniform, flawless.

No. 6.—Angles of fracture with plane of top of shelf, at middle of bracket, 20 degrees; at edges, 90 degrees. Metal medium grain, flawless.

No. 7.—Metal medium grain, flawless.

No. 8.—Angle of fracture with top surface of shelf, at center of shelf, 15 degrees; at edges of shelf, 45 degrees.

No. 9.—Angles of fracture with surface of shelf 10 degrees to 15 degrees for 3 inches on either side of center of bracket 90 degrees at edges of shelf, and 45 degrees at edges of brackets. Metal fine grain at edges, medium towards center, free from flaws.

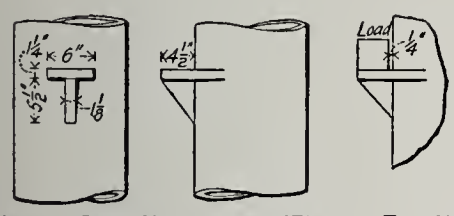


Fig. 4.—Tests Nos. 3, 7, 8. [Fig. 5.—Test No. 3

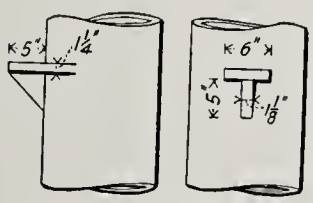


Fig. 6.—Test No. 4.

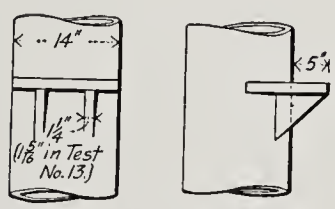


Fig. 7.—Tests Nos. 9, 10, 13.

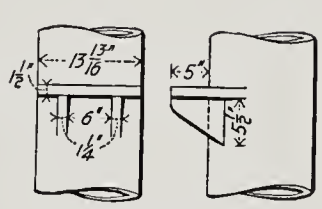


Fig. 8.—Test No. 14.

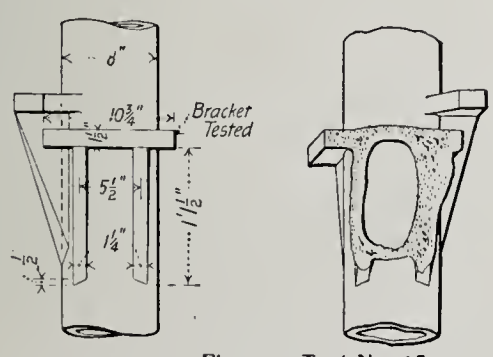


Fig. 9.—Test No. 15.

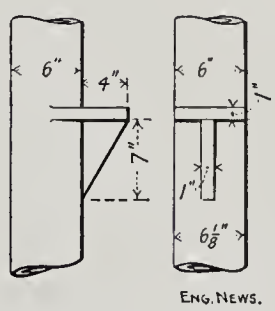


Fig. 10.—Tests Nos. 17, 18, 19, 20.

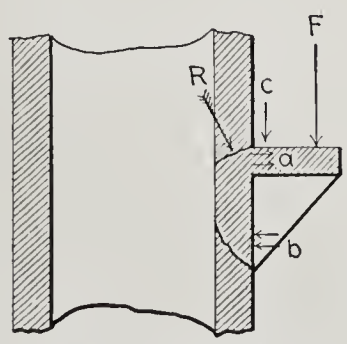


Fig. 15.—Sketch Showing Probable Manner of Fracture.

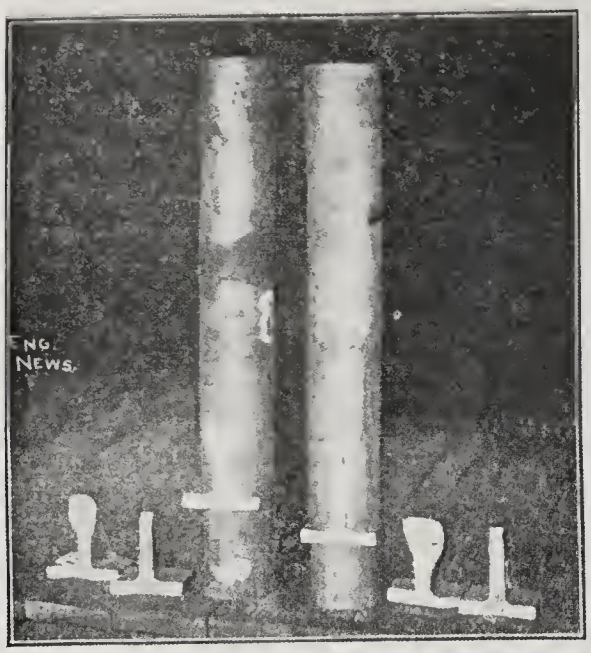


Fig. 13. Fracture of Brackets on Colums, Nos. 7 and 8.

No. 10.—Angles of fractured surface measured from plane at top of shelf, at center of shelf, 30 degrees; at edges of shelf, 90 degrees; on outer line of brackets, 45 degrees.Metal medium grain, rather fine at edges; one flaw, about ⅜x¾-inch at top of fractured surface.

No. 11.—This bracket broke in a peculiar manner, taking out a piece of the column shaft above the bracket 4½ inches wide (average) by 11 inches high. Metal medium grain, no flaws.

No. 12.—The breaking load, 49,100 pounds, does not indicate the strength of the bracket, as the column had been weakened by the tearing out of three other brackets, and the body of the column failed in this case.

No. 13.—Angle of fracture with surface of shelf 10 degrees for 11 inches of the width of the shelf and 90 degrees at edges. Metal medium to coarse grain, no flaws.

No. 14.—Angles of fractured surface of shelf with top surface of shelf 12 degrees at center, 90 degrees at edges. Metal rather coarse at center and finer at edges.

No. 15.—Bracket broke as shown in Fig. 12. Metal free from flaw and medium coarse.

No. 16.—Fracture very irregular, as in Fig. 12. Metal medium grain, uniform and flawless.

No. 17.—Metal flawless and medium grain. The bracket failed by shearing off direct, the fractured surface of the rib being pear-shaped, as shown in Fig. 13.

No. 18.—The bracket sheared off at its junction with the column. The fractured surface revealed a shrinkage cavity about ¾-inch in diameter, besides more or less defective metal. Part of the surface was dark and more or less honeycombed; the other part was fine and even.

No. 19.—The bracket failed by shearing. The lower part of the bracket carried away part of the shaft, leaving a pear-shaped surface similar to No. 17. Two small shrinkage cavities were revealed near the bottom of the bracket, one about 1 inch in diameter and the other about ¼-inch diameter. Metal fine and uniform, except the flaws noted.

No. 20.—The bracket sheared off at its junction with the shaft. The metal was medium and uniform, except that there was a shrinkage crack, a cavity about ¾-inch in diameter, and defective metal over an area of 1¼ by 1½ inches.

No. 21.—The metal was sound, very fine grained, light gray in color and very brittle. Angles of fracture with surface of shelf 45 degrees at middle of shelf, increasing on either side to 90 degrees. Metal was torn through shaft on one side. (See Fig. 14.)

No. 22.—Metal same quality as No. 21, one flaw 2 square inch where shelf joins bracket. Bracket broke in three pieces. Body of the column was not affected. (The pieces are shown at the left in Fig. 14.)

The irregularity of the failures precludes any specific method of analysis, and an approximate rule of thumb based on the sectional area of the bracket through the shelf and supporting ribs has been suggested. Reducing the results to strength per square inch of shelf and supporting ribs, we have the ultimate strength per square inch of but 2,500 to 5,600 pounds for loads at end of shelf, and 4,000 to 10,000 pounds for distributed loads.

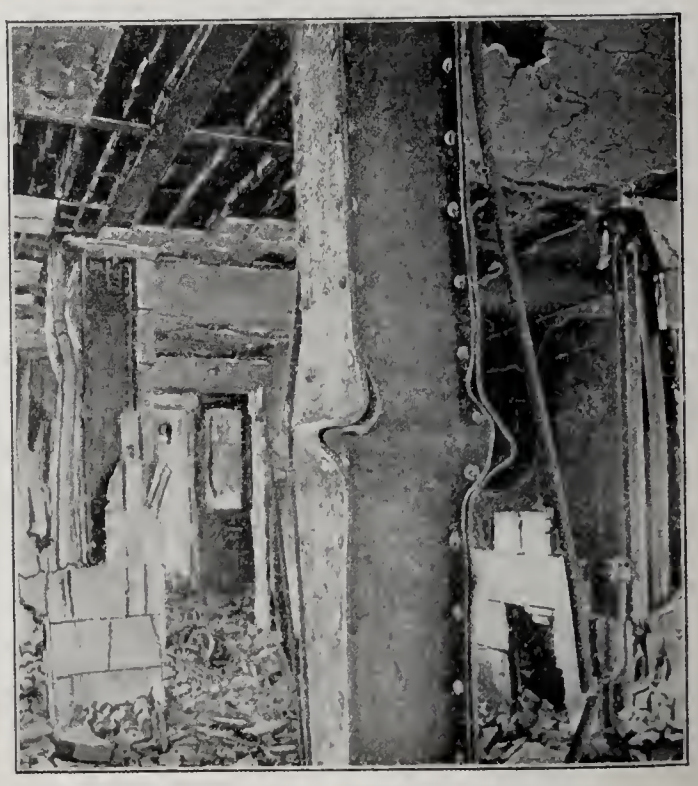
It is evidently desirable to bring the load as near to the shaft as possible, making the shelf as narrow as practicable.

In order to avoid temperature stresses due to unequal cooling, it is a safe rule to limit the thickness of brackets supporting the shelf, to the thickness of the shell of column, and if necessary put in more than one rib.

When the bracket is much thicker than the shell, a coarse granulate fracture will be noted if bracket be broken.

Supporting ribs should not be made too short, as it will be noted that the majority of fractures were not failures of bracket and ribs by shear, but by breaking a section of shell from the column to which the bracket is attached, leaving a pear-shaped hole. Additional length of rib would add strength, as depth does to a beam or truss.

In conclusion it should be noted that the columns selected for tests noted in this article, are of such thickness as to secure far more uniform results than could be legitimately expected with the greater variations of thickness used in every-day practice.



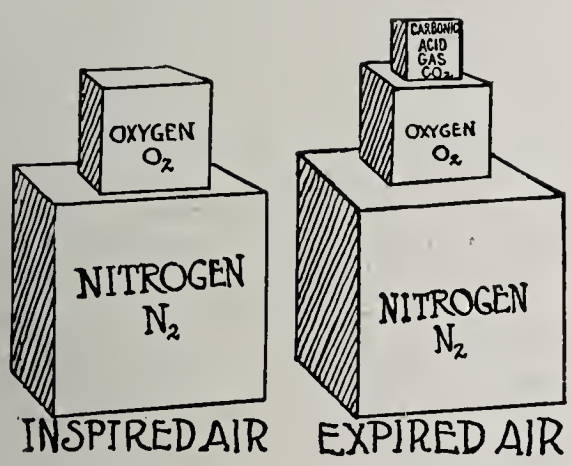
Steel Column on Seventh Floor, of the Calvert Building, Baltimore, Md. Buckled by Heat through the Loss of its Protecting Covering. Carpentry and Building.

WHY WE NEED VENTILATION.

Morris R. Ebersole.

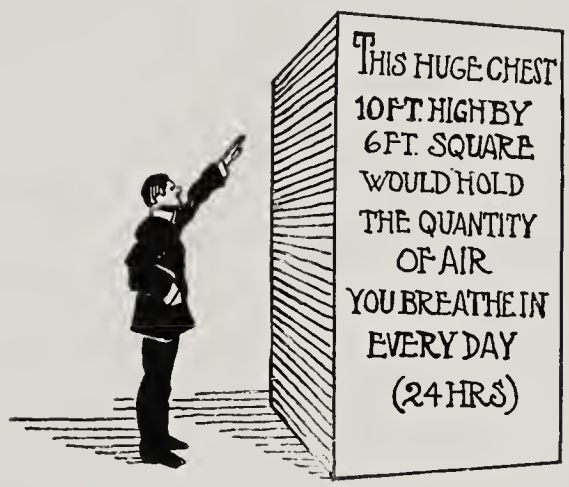
Early man—the creature of the field and forest—gave very little thought to the construction of his habitation. His inventive genius was chiefly spent in devising implements of war or of the chase, and his life was spent in the open air, occupied in such pursuits. Even with the advent of the first stages of civilization we are surprised at the meagre efforts to make his abode a healthy and comfortable place. It is true that among these early attempts we find masterpieces of architecture, but as far as we have been able to ascertain, were not these attempts chiefly designed for exterior effect? The dwellings of the ancient and middle ages were notable for discomfort and inconvenience, and especially is this remarked in the lack of appliances or inventions for heating and ventilation.

The early races were subjected to the same changes and hardships of climate that we are, but probably these hardships were not felt so keenly as they are now among highly civilized, sensitive and nervous peoples. At any rate, with the advance of learning and investigation, and, we might say, *sensitiveness*, it has been only during the past century that any material advance has been made in heating and ventilating appliances. The basis for the need of heating apparatus is physiological, while the basis for the need of ventilation may be said to be chemico-physiological, and it is this phase which we would discuss.



Atmospheric air, as every one knows, is composed in the greater part of three or four well defined substances or gases, namely, nitrogen, oxygen, carbon dioxide, water vapor and ammonia. In its natural state, whether from the equator or the poles, the composition of air is almost invariable, with the exception of the amount of water vapor. Man was made to exist in this envelope of air surrounding the earth, and therefore his anatomy is affected one way or the other according to the composition of the air he breathes. The life-giving and vital principle of air is oxygen. This element revives, resuscitates, sustains and feeds, and the breathing organs are so minutely and beautifully proportioned that the least change or diminution of this element in the air inhaled is immediately evidenced by a feeling of discomfort or nausea—an unmistakable sign that something is wrong.

In these days when so much of our lives is spent indoors, some provision must be made that the air we constantly breathe is not lacking in any of its healthful, *natural* qualities. Expired air differs from inspired air *by just so much harmful ingredients as is the purpose of nature to eliminate from our systems.* These eliminations and chemical changes in the composition of air in our lungs are constantly going on. Nature has provided that man should eliminate such things as are harmful to him—when elimination ceases, life ceases—and these waste products are *in themselves* poisonous and dangerous to health if we take them again into our systems.

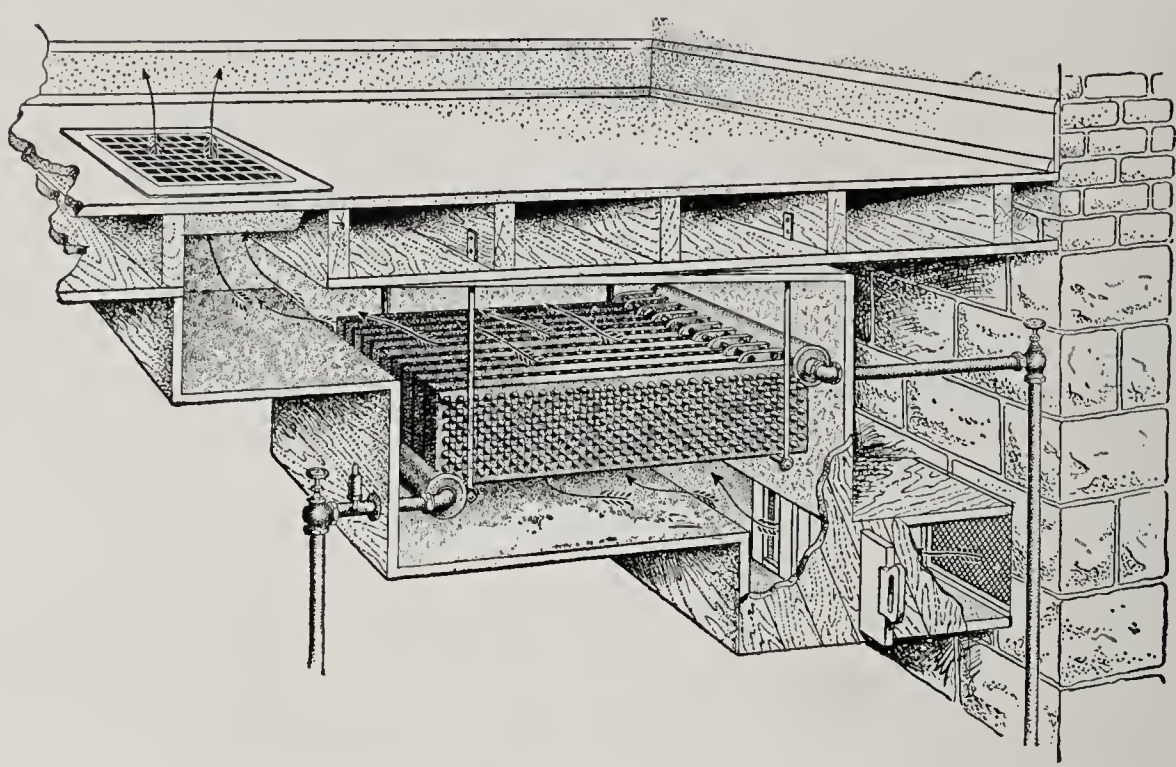


In expired air the amount of carbon dioxide—an inert suffocating gas—is increased, and the amount of oxygen is proportionately diminished. Man cannot live in an atmosphere in which the oxygen is too rare; or, in other words, too highly diluted with nitrogen. Nitrogen is not poisonous, but it cannot sustain life, and it acts as a dilutent to the oxygen, which if present in the pure undiluted state would cause a more rapid combustion than the delicate tissues of our lungs could bear. Again, other complex poisonous products are exhaled in the breath, which of themselves would rapidly cause decay and disease.

For these reasons, and living in confined spaces as we do, most of our lives, in which space we breathe and have our being, it is only the pressure of the inexorable laws of nature which *drives* us to think of ventilation and to make provision for it.

What are called indirect and direct-indirect radiators are manufactured and installed to provide for heating and ventilation, and our illustration shows more clearly than a description one of the most approved methods of installing an indirect radiator.

Our bodily comfort and health also demand a pleasant temperature—so that heating and ventilation are bound together by requirements of nature beyond our control and which we must observe if we would preserve health and happiness.



ONE METHOD OF MAKING PROVISION FOR VENTILATION WITH A STEAM HEATING APPARATUS, NOTE THE FRESH AIR DUCT AND INTRODUCTION OF WARMED FRESH AIR INTO THE LIVING ROOMS

A HOLLOW-TILE FIREPROOFING TEST.

The fires that occur in offices in fireproof structures are not usually noticed, because the ordinary furniture in an office will burn itself out or is extinguished before the doors can be burned through. But a fire occurred January 23 in the Masonic Temple, in Chicago, that for several reasons is notable.

The Masonic Temple is nineteen stories in height and when it was designed, some fifteen years ago, was the highest office building in the world. It is steel and hollow-tile construction according to ordinary methods. On the fifth floor a concern manufacturing X-ray machinery had a large shipping-room filled with boxes, excelsior and other combustible materials used in packing. This became ignited in some way and the result was a most spectacular fire, and as it occurred in the middle of the day, was witnessed by vast crowds. The fire burst through the windows and as the firemen felt that the building was secure and that nothing could be saved in the rooms where it occurred and that great damage would be done by water, it was allowed to burn for half an hour without any attempt being made to extinguish it. When this was done the interior showed the effect of the fire in blackened walls, consumed woodwork and some loss of plastering, but that was all. A close inspection directly after the fire was extinguished showed the structure remained intact, with no more evidence of damage than the interior of a furnace shows after the fires are drawn. This condition is taken as a matter of course by those who own hollow-tile-fireproofed buildings everywhere, for the greatest fires that have occurred in such structures, notably the Athletic club fire in Chicago and the Exchange building in Minneapolis, both burned when in process of finishing and full of flooring and trimming lumber, with no doors to stop the drafts and spread of flames have proved that our present method of fireproofing is absolutely indestructible as far as practical purposes require. The additional cost should be added to the general cost, as generally, as cost of brick for the walls, and besides the rebate on cost by a lessened insurance rate, the saving of a valuable building, as in the case of the Masonic Temple, justifies any difference that may exist between the best fireproofing methods and "slow-burning," "fire-resisting" or "mill-construction" methods that are resorted to to comply with laws that are too inadequate in their demands and too lax in their enforcement.—Inland Architect.

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It is reported that the first commission given to any architect for the rebuilding of Baltimore was secured by Howells & Stokes, of New York. Mr. Howells was at the fire in less than twenty-four hours after its outbreak, and left Baltimore on the following day with the contract for building the new Stock Exchange. He was given six days in which to complete plans for a structure for the new exchange, the price to be of no consideration. He immediately put a force at work night and day, and on Friday took the completed plans and specifications to Baltimore for inspection, where on Monday of this week they were accepted. This is said to be the shortest time on record for the planning of a building of such monumental character as a Stock Exchange, where price consideration is eliminated. Mr. Howells is a son of William Dean Howells, the distinguished author.—Construction News.

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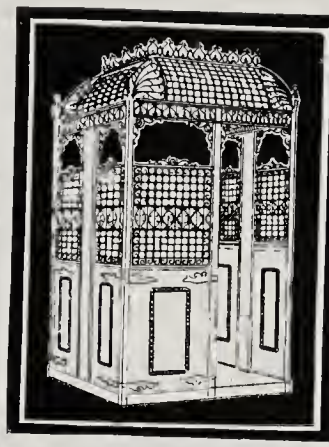

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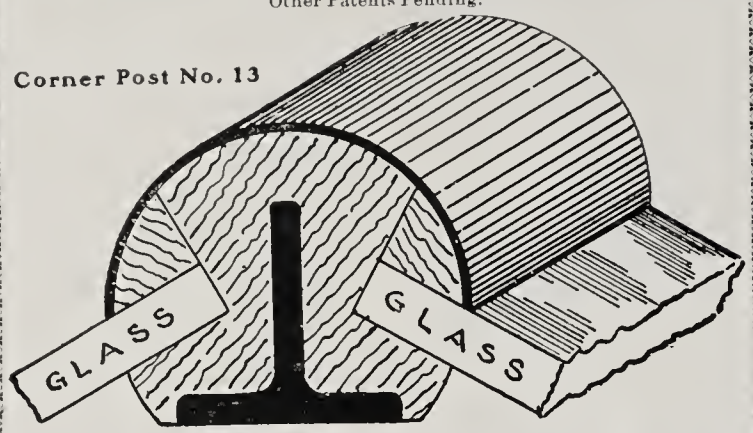

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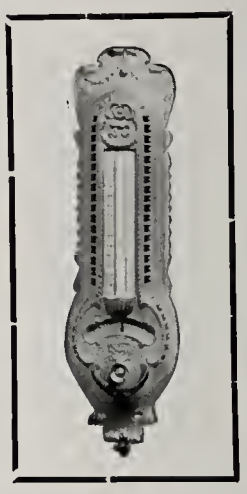

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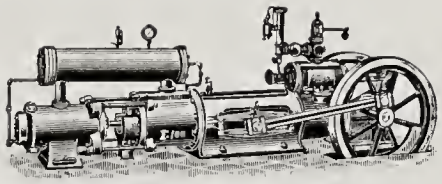

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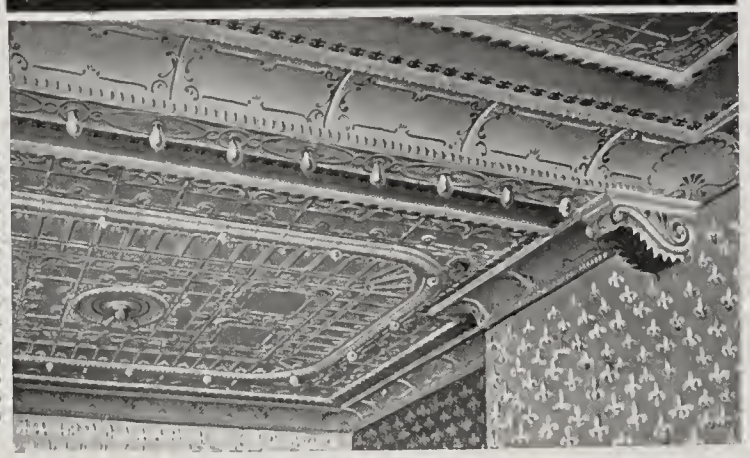

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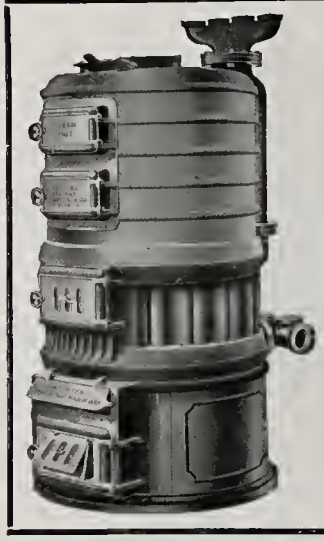

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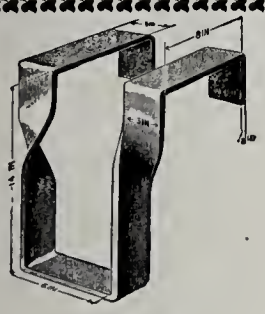

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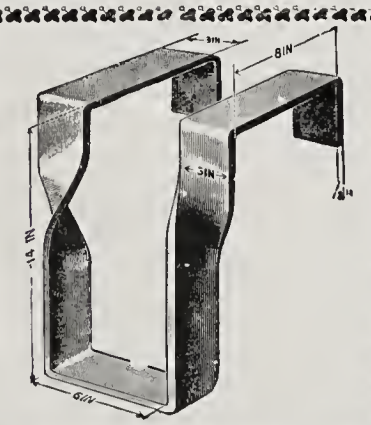

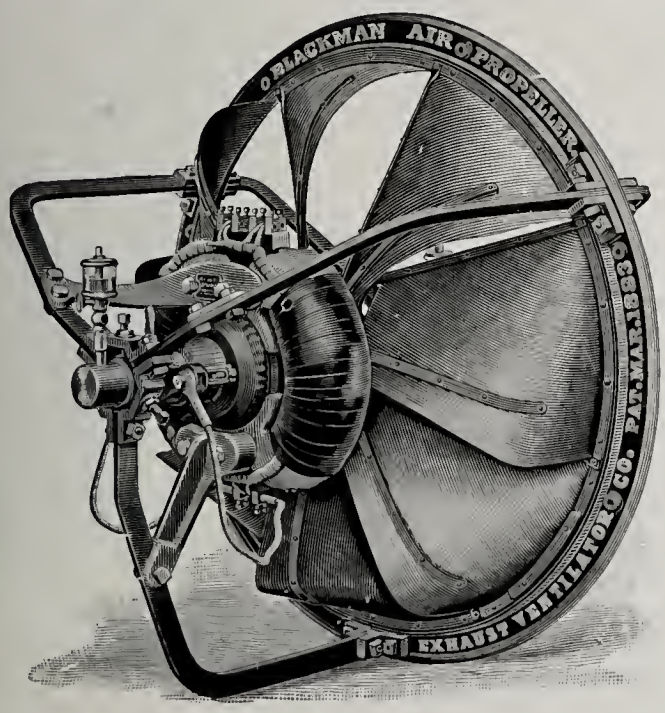

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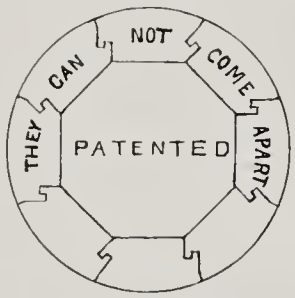

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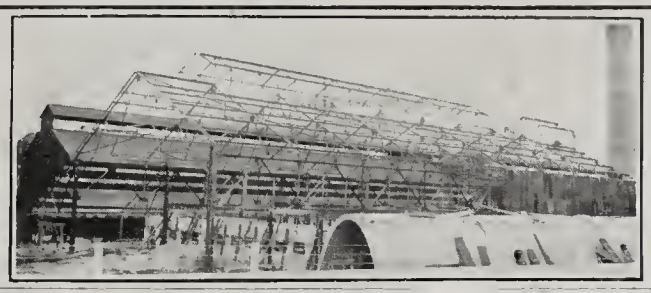

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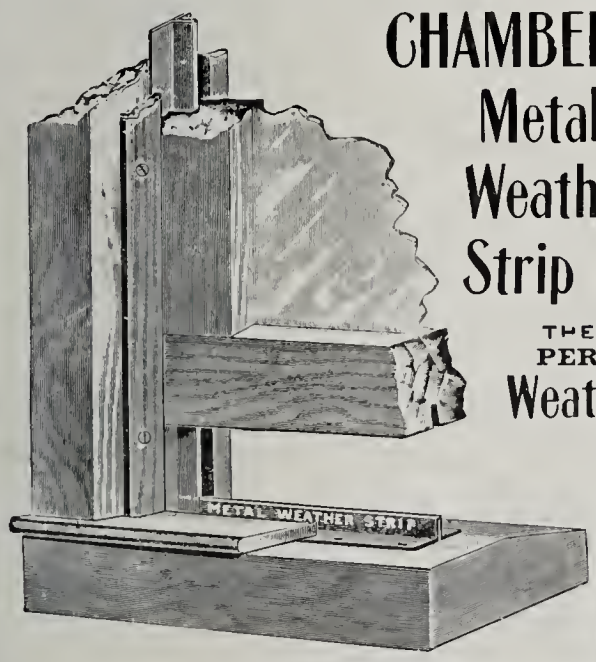

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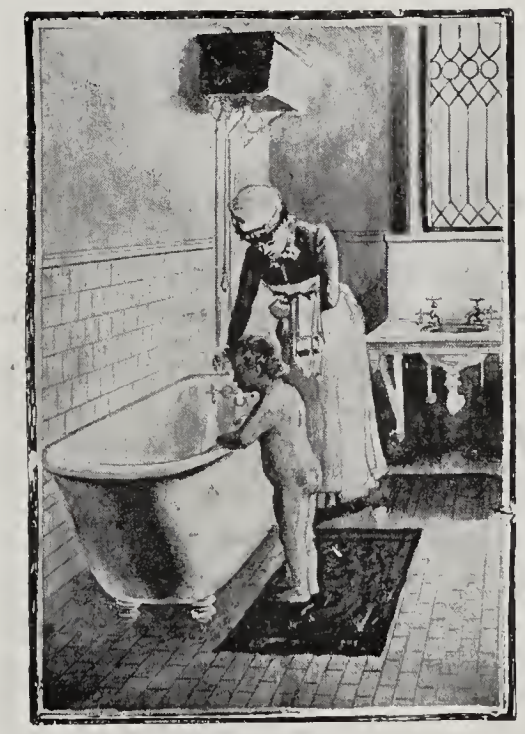

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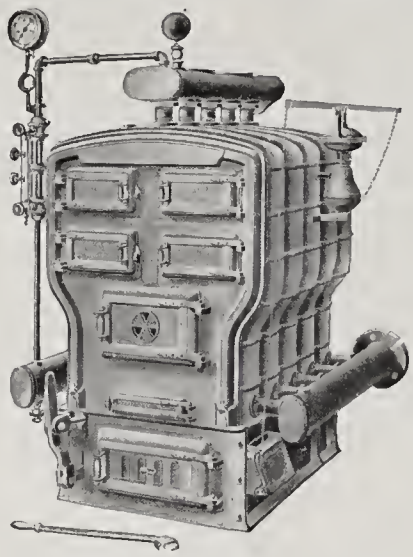

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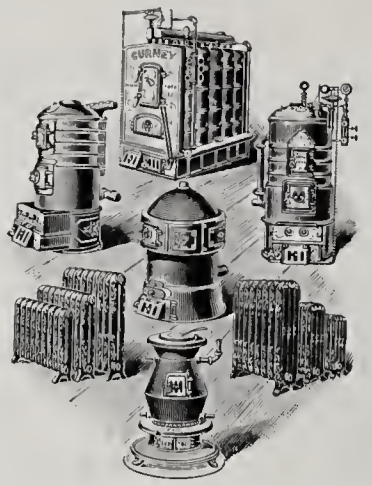

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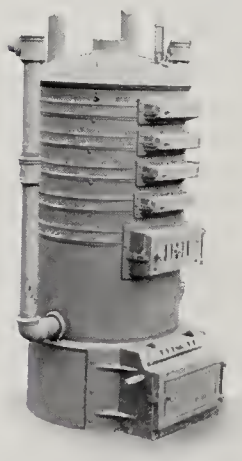

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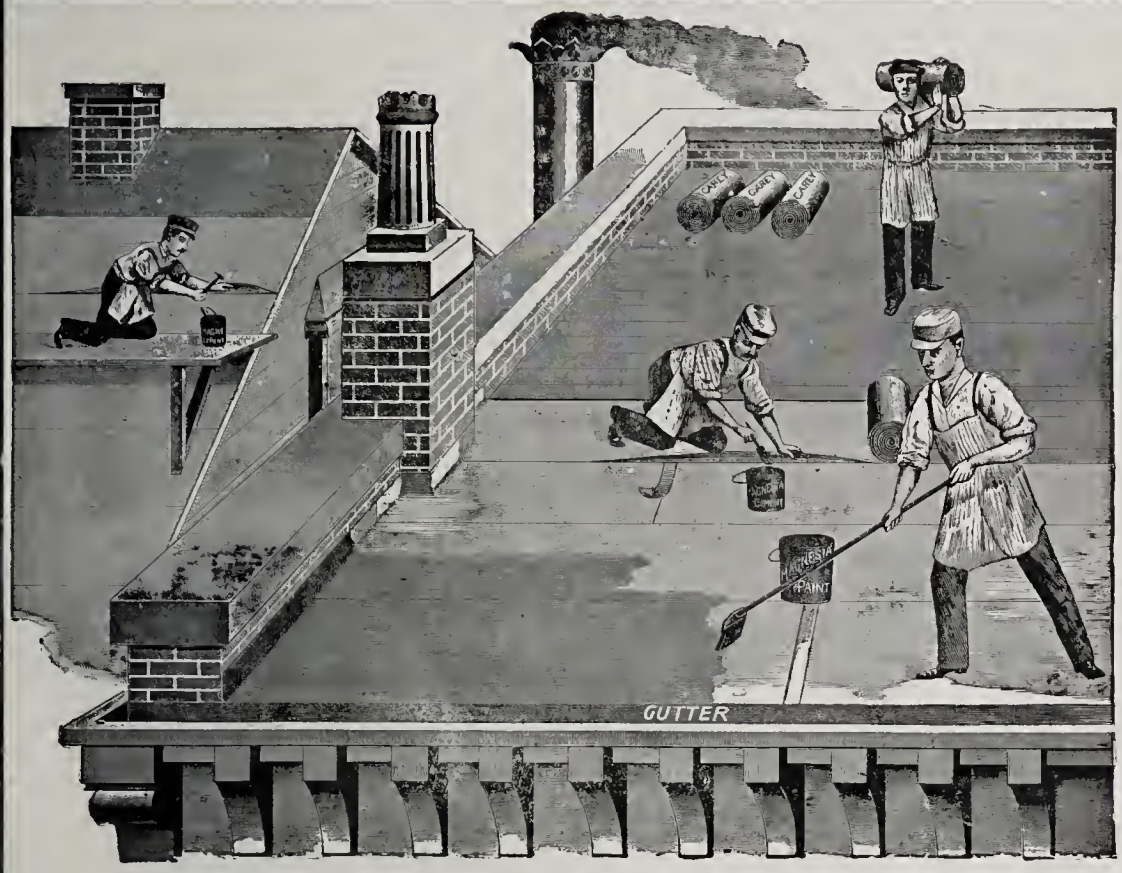

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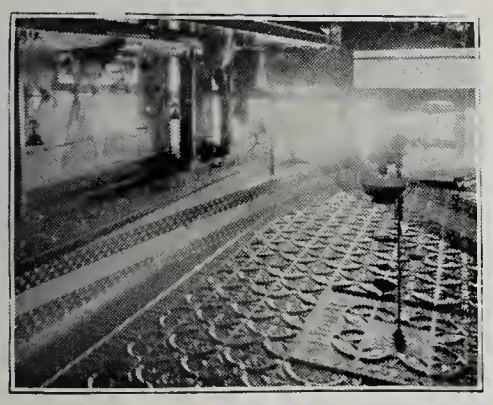

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NEAR PERFECTION.

A copy of the second edition of volume V, No. 5, of The Boiler Magazine, by the Kellogg-Mackay-Cameron Co., of Chicago, Minneapolis, Kansas City and Seattle, has just come to hand, and is pre-eminently the best thing of its kind that has ever entered the office of the Western Architect, though it has seemed almost impossible to improve on "The Boiler Magazine" for 1903.

The work, as was last year's, was edited and compiled by Morris R. Ebersole, manager of the publicity department of the above well-known house and reflects great credit on his ability as designer, author and publisher.

The present number contains many articles of great interest to architects, heating concerns and the general public, among which may be mentioned: "To Ventilate the Nursery," "The Question of Healthful Heating," "The Care of the Boiler and Radiator," "The Need of Ventilation," "Drafts and Chimneys," The Value of Fresh Air," "Greenhouse Heating," "New Heating Plants in Old Houses," etc.

Mr. Ebersole, who is a valued contributor to the Western Architect, is making an enviable reputation as a writer upon heating, ventilating and kindred subjects.

RESIDENCE ELEVATORS.

The growth in installing the push button electric automatic elevators in private residence is one of the latest and most important steps in architecture. New residences of any special pretensions are now quite generally equipped in this manner, and many alterations are being made in the older constructed houses especially to accommodate these elevators, as well as for dumb waiters which are of the automatic electric nature. In many of the most costly residences, a separate automatic elevator is also put in for the exclusive use of the servants as well. Each and every floor has its push button at each landing, and when the button is pressed, the car responds by coming to the floor and stopping there of its own accord. The door of the elevator remains locked until the car has come to a complete stop at the proper landing place.

The mechanism is very simple, and children operate them as readily as adults. The Winslow Elevator & Machine Co., Chicago, Ill., are the manufacturers of these Automatic Electric Elevators, and nothing of the kind elsewhere manufactured, comes anywhere near equaling the "Winslow" in perfection and reliability.

Architects and others who are interested, will be cheerfully furnished with all detailed information regarding these delightful and essential elevators, by addressing the company as indicated above.

A NEW CONCERN.

Mr. P. H. Carney, of Mankato, Minn., and for many years known to the architects and builders of the Northwest as the head of the Mankato Cement Co., has formed a partnership with Mr. J. D. Hilger, of St. Paul, Minn., to deal in Portland and Natural Hydraulic Cements, Lithocolla Hard Wall Plaster and Mineral Fireproof Paints. The firm will be known as The Hilger-Carney Co., and will be located in the Island Warehouse, on Nicollet Island, near the Northern Pacific Railway tracks, which will give the new concern many advantages in the way of shipping, especially throughout Minnesota and the Dakotas.

As both Mr. Carney and Mr. Hilger are men of long business experience, with a wide circle of acquaintances among those connected with the building trades, as well as with the heads of the engineering departments of the various cities throughout the Northwest, we predict a pleasant, prosperous and successful career for the latest concern to enter into the building material and supply business of the Twin Cities.

OF GREAT ASSISTANCE TO ARCHITECTS.

Architects who are continually having trouble with contractors who persistently represent that they are unable to secure the brand of roofing tin which they specify for roofs, will be glad to learn that the American Sheet & Tin Plate Co., of Pittsburg, are making special efforts to have the trade carry their "M. F. Old Style" and "U. S. Eagle New Method Terne Plates" which are reported to be the best roofing plates either in this or any other country, and they desire to assure the profession that there will be less difficulty in the future in procuring their goods in every locality.

The American Sheet & Tin Plate Co. are taking special pains in issuing a model specification for tin roofing, which we print herewith. This house also desires to call the attention of architects and builders to the fact that bad paint is often chargeable with the early failure and destruction of tin roofs. It needs only a little reflection to convince one that nothing short of a first-class linseed oil paint, should ever be used on either the upper or under side of sheet metal work.

COPY OF J. D. MCILROY & SON'S SPECIFICATIONS FOR TIN ROOFING.

FLAT SEAM ROOF.

First: Use tin of good quality; see that the tin is square; notch corners 1 inch: turn ½ inch edge; use 7 nails or cleats to the sheet; hammer smooth with mallet; flux with rosin, using plenty rosin; solder with hot soldering copper, soldering on top of seam and soak the solder well into seam; use on IC tin 5 pounds of ½x½ solder, on IX tin 6 to 7 pounds per square. See that the rosin is well cleaned off after the roof is finished; then give the roof one coat of paint made of pure English venetian red or pure oxide of iron and pure boiled linseed oil and a little turpentine; in thirty to ninety days a second coat of the same paint, or good graphite, using in each case only linseed oil for a thinner; in one year a third coat; after that you will be required to paint only once in every three or four years. We take no stock in painting under side of flat seam roof. If the sheeting boards are not tongued and grooved, there should first be put on a layer of dry felt paper to exclude the air from cracks and joints and to prevent nail heads from coming in contact with tin roof. If the sheeting boards are old and dry, 20x28 inch plates are preferable; if the sheeting boards are wet and green, 14x20 inch plates are preferable. 20x28 inch sheets will give you an average measurement on roofs of 385 feet per case, 112 sheets 20x28 inches. Average measurement on roof 14x20, 112 sheets 187 feet to box.

STANDING SEAM ROOF.

Have the tin square; notch corners for seams a little to ease the bending of the several layers; allow ½ inch for cross seams; solder well; put tin in straight rolls 20 inches wide;

use 1¼ and 1½ inch tongs for side or standing seams; cleat every 12 inch, 2 nails to cleat; be sure to have your seam perfect; never put a standing seam roof on where you have less than 1½ inch fall to the foot; paint the same as Flat Seam Roof. In Standing Seam Roofs always put a layer of dry felt paper on roof before laying tin, it will exclude the air from seams and will prevent nail heads in sheeting from coming in contact with the tin. You will have an average of 352 feet per box of 112 sheets, 20x28 inch tin. If the above directions are followed you will have no trouble, provided a good quality of tin is used. We can show roofs now which have been exposed thirty-five to forty-five years and are still intact.

COLUMBUS STEEL ROLLING SHUTTER CATALOGUE.

The Columbus Steel Rolling Shutter Company Columbus, Ohio, has recently issued a very interesting catalogue devoted to steel rolling doors, shutters and partitions, for the manufacture of which this company has achieved an enviable record. The catalogue contains only a few pages, but it is succinct and concise, with ample illustrations and sufficient descriptive matter to give people a comprehensive idea of the product of its plant. Among the interesting testimonials which this company has recently received is one from F. B. Sheldon, chief engineer of the Hocking Valley Railway Company, at Columbus, Ohio. He says:

"In answer to your inquiry of the 27th, regarding the large steel rolling doors you placed on our machine shop and freight house in Columbus, Ohio, will state: These doors have given entire satisfaction. The mechanical construction is simple and first-class. We are specially pleased with the formation and construction of your slatting; its form gives great strength, and leaves no recesses to hold water and snow, which is an advantage.

"Prior to adopting your doors we used wooden ones hung on hinges at the side in the usual manner, and these were constantly being damaged by the switching of cars through them when not properly fastened open; this annoyance ceased altogether upon using your doors with the vertical lift. It gives us pleasure to recommend your doors to those who are in need of such construction."—Construction News.

TWO MILLION BARRELS OF UNIVERSAL CEMENT A YEAR.

When the Illinois Steel Company has completed its plant at Buffington, Ind., the total capacity of its works, including the plant at South Chicago, will be 2,000,000 barrels of Universal Portland Cement annually. The plant at Buffington will have a capacity of 4,000 barrels a day and is rapidly nearing completion. It will be one of the three largest cement plants in the world. It has sixteen rotary kilns that are eighty feet long and seventy feet in diameter. The machine shop is now finished, and the burner building is under way. Foundations for all the buildings will be finished in about two weeks. The new works will go into operation in July or August.

The Guaranty Cement & Stone Co., at 704 New York Life Bldg., Minneapolis, Minn., are the Northwestern sales agent, for the Universal Portland Cement, and will be pleased to furnish estimates to all contemplating the use of Portland Cement in any manner in this section of the country.

HANDSOME ART CALENDAR.

The Henry Sanders Co., of 77-85 Weed St., Chicago, Ill., are sending out a handsome art calendar illustrating the "Kolls Patent Lock Joint Columns," considered by most architects and builders as the very best columns now on the market.

The calendar also shows excellent half-tone cuts of many beautiful residences and pergolas in this country that are provided with these well-known columns. Some of the houses upon which they are used may be mentioned as follows: S. P. Shotter's residence, Savanah, Ga.; Allenhurst Inn, Allenhurst, N. J.; John A. McCall's house, Long Branch, N. J.; C. A. Ward, Evanston, Ill.; Paul O. Stensland's residence, Irving Park, Ill., and Franklin Hall, the Dayton Soldiers' Home, Dayton, Ohio.

The Koll Patent Lock Joint Columns are invariably mechanically and architecturally correct. Catalogues and complete description will be mailed to all who are interested enough to write to the above concern mentioning the Western Architect.

THE NEW LIFE BOILERS.

The many excellent features of the Des Moines Manufacturing & Supply Co.'s "New Life" Heating Boilers, both for hot water and steam (which are built both brick-set and portable), and the "Pleasure," are now offered to the building public with the request that the merits of these boilers be examined into by all those who are interested.

We take pleasure in calling attention to the following special points of superiority as claimed by the manufacturers:

First—Their durability and safety.

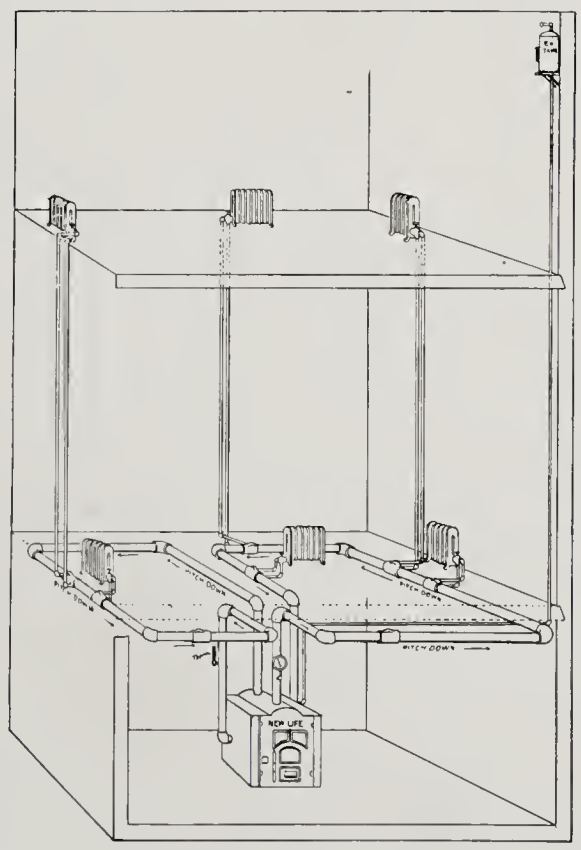
Second—Their economy in burning any kind of fuel.

Third—Their adaptability and convenience for any location.

Fourth—Their compact and neat appearance.

They are made of open earth flange steel 55,000 pound tensile strength, and all seams are riveted and calked tight. The top of crown sheet, top and sides of fire box are cylindrical in form. All angles are flanged rounding. All flues are expanded by the dudgeon process and are beaded tight to heads. All flanges are riveted to the boiler and tapped ready to receive water or steam pipes. The design is such that all mud or other foreign matter will settle below the fire at the lowest point, and all of the water in boiler can be drained out. There are no rust joints to leak or give out.

The boilers are so constructed that they will economically burn soft coal, slack, hard coal, coke or wood. They embrace all the valuable features of the locomotive fire box. The fire box is full length of the boiler, and is surrounded by water. In the front end of fire box a shaking grate is fitted, immediately back of which is a perforated stationary grate. In cleaning grates, the fire can be pushed back on perforated grate, avoiding necessity of putting fire out. The flues are all



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located so that by simply opening doors in front they are accessible and are easily kept clean from soot and deposits, and thus a great saving of fuel is accomplished.

In these boilers the water circulation is vertical and very rapid, there being no impediment to the natural rise of hot water. There is no flat surface in a horizontal position for soot and ashes to accumulate on, as will be found in most boilers of other makes, and there is no brick work which comes in contact with hot fire to absorb the heat. Other minor features which add to the economy of the boilers, such as the position of the inlet or return pipes, the outlets and the introduction of hot air, the proper regulation of the damper, door, also check draft, etc., can better be appreciated when seen in actual use.

The boilers, having a low water level, can be packed in very shallow cellars or basements, and, as is the case sometimes, on the floor of the same rooms which are heated.

These boilers are built on the most scientific principles to give the best results, as may be seen from cut shown above. They are smooth and neat in appearance, the portable boilers not requiring any mason work or covering of any kind. In cases, however, where it is preferred to prevent any heat escaping in basement or boiler room, they can be encased with one single layer of brick, or a four-inch wall; or, if preferred, can be covered with asbestos cement instead of brick.

The Des Moines Manufacturing Supply Company will be pleased to mail to any one interested copies of testimonials from parties who are using their boilers, among whom are owners of the finest residences in Des Moines, as well as other cities.

EXTENSIVELY USED.

Few people outside of the regular contractors and builders realize how extensively crushed stone is used in buildings of the present time. With few exceptions, concrete of which crushed stone is the principal ingredient, forms the foundation and floors, and often the roofing is made of it.

The Langdon Stone Co., of Minneapolis, who are leaders in their line, are fortunate in possessing a sort of blue limestone that crushes into the most perfect shapes for all uses. While not so hard or so expensive as granite, it is hard enough to be equally as good, and it comes from a sufficient distance below the surface to be proof against all atmospheric disturbances. The Langdon people furnish this stone in sizes varying as widely as those of the best hard coal, and deliver it either separately or mixed. Their crushed stone has been used in the foundation floors and roof of the new Minneapolis Chamber of Commerce; the foundation vaults and floors of the new North-Western Bank Building and the foundation of the new Cream of Wheat building, besides being largely used in the make-up of the Glass Block addition. For street and railroad work this stone is in constant demand.

FLY TIME AT HAND.

The season is at hand when the house fly and other annoying insect pests appear. Sticky fly paper may be well enough in its way, but it only catches a part of the flies, and does not attract the mosquitoes and June bugs. The only sure way to be rid of the annoyance of flies and other winged insects, that have been proved by scientists to be not only annoying pests but dangerous carriers of disease germs, is to keep them out of the house altogether by screening the windows and doors. Cheap, makeshift screens are for sale, but little dependence can be placed in them, for they soon warp, twist and go to pieces, and it is poor economy to buy them. The only satisfactory plan is to send a list of your windows and doors, with the sizes, to some reliable manufacturer of window and door screens, or to their authorized agent, and get from them an estimate on what you require.

The E. T. Burrowes Co., of Portland, Maine, who are the largest and oldest manufacturers of window and door screens in America, have supplied about all the representative buildings—both public and private, throughout the country with their rustless window and door screens. Mr. D. H. Robinson, at 837 Guaranty building, Minneapolis, is the local Northwestern representative of the "Burrowes Rustless Screens," and he points with pride—as well he may—to the fact that he has placed these well-known screens for such people as G. F. Dean, J. C. Oswald & Co., J. F. Moore, J. H. McDonald, D. Bassett, Field's Flats, F. B. Long, W. C. Whitney, Minneapolis Club, J. H. Burton, Plymouth Clothing Co., R. D. Cone & Co., Groveland Flats, Home for Aged Women and Children, City Hospital, John Crosby, Elliott Wyman, F. L. Greenleaf, D. C. Bell, Zier Flats, and others who are the representative citizens of Minneapolis, and whose buildings are the best of their class in the city.

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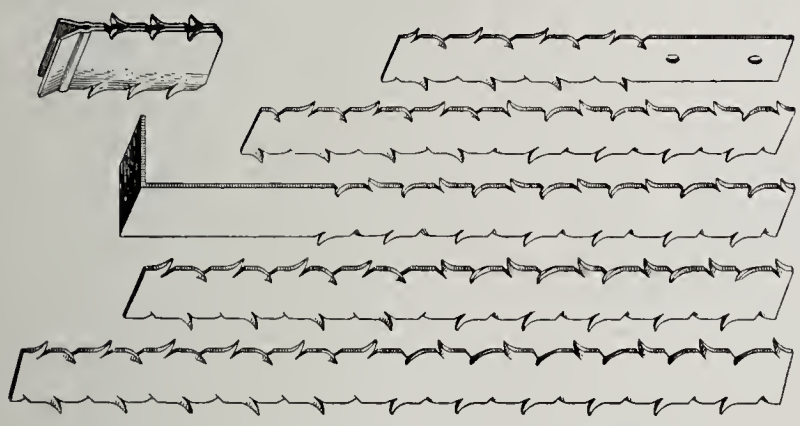

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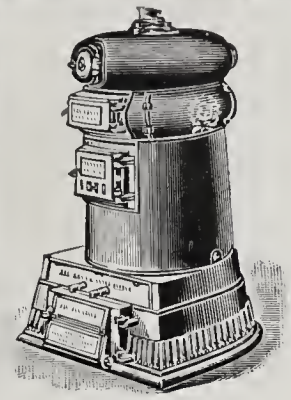

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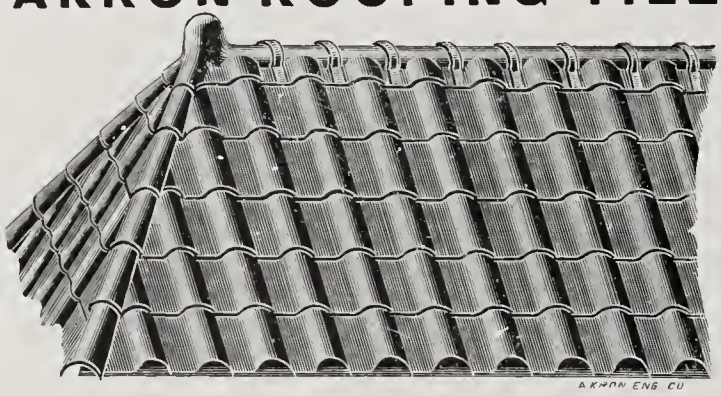

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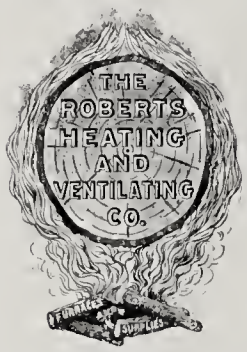

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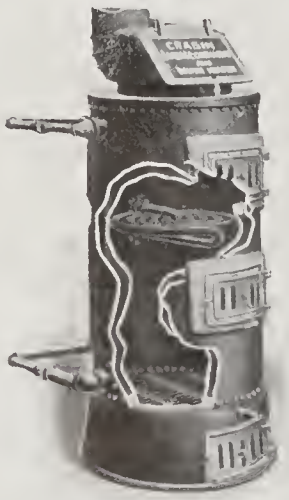

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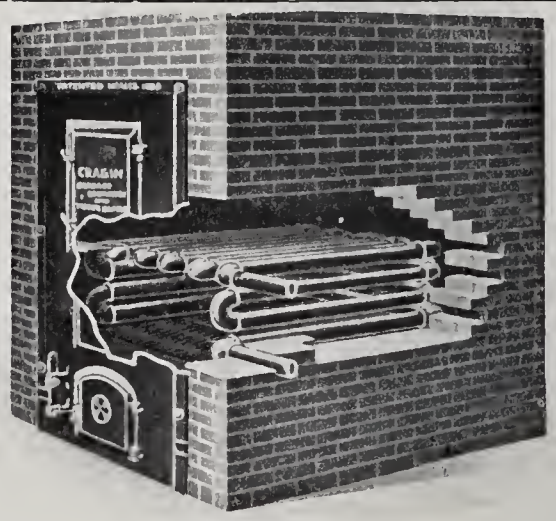

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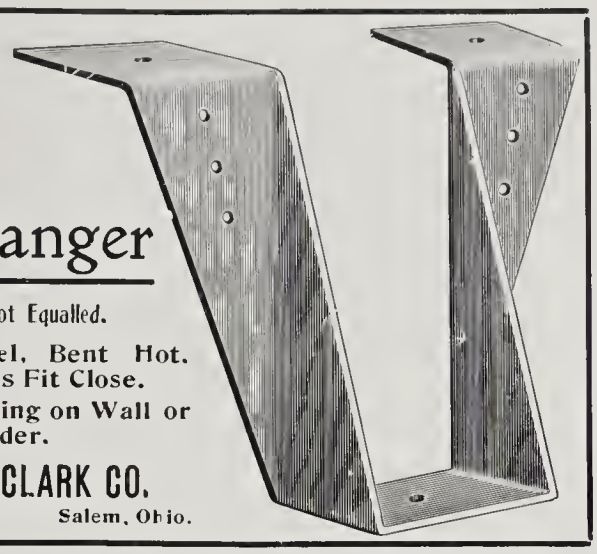

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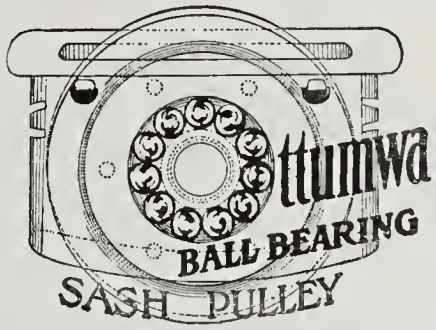

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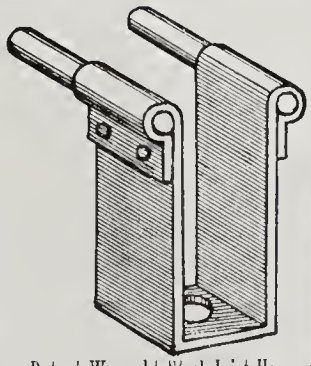

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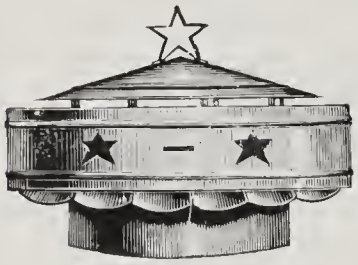

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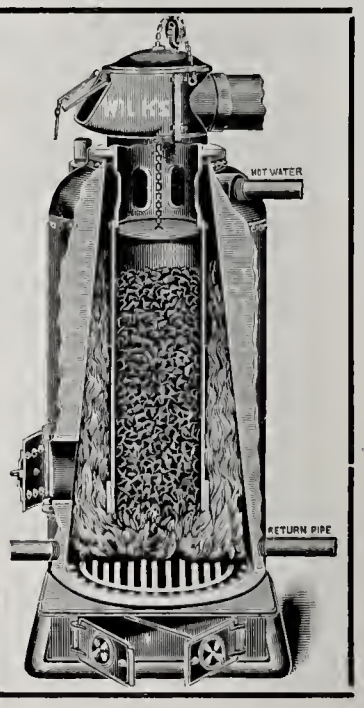

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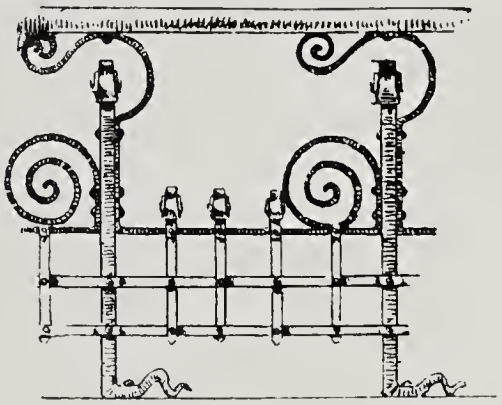

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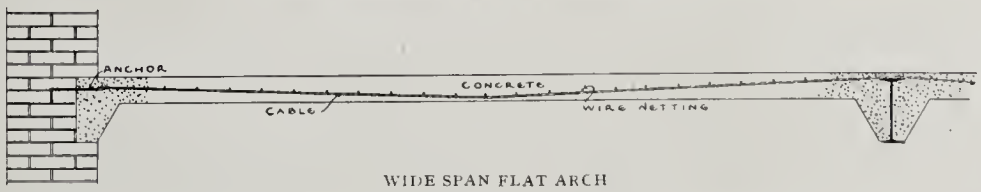

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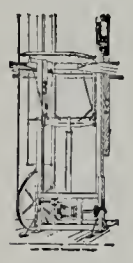
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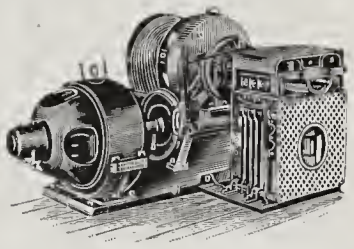

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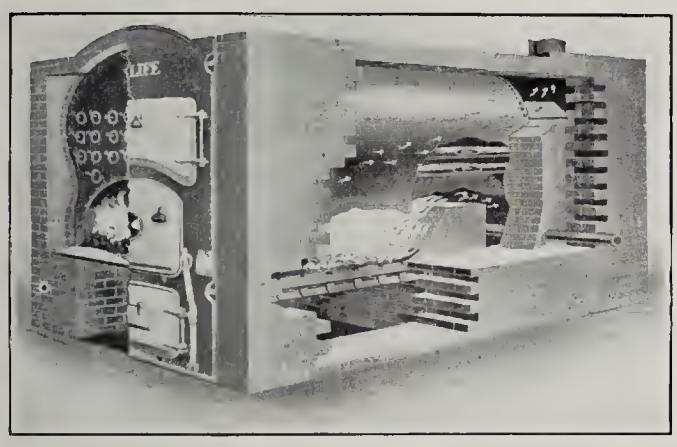
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DEVOTED TO ARCHITECTURE AND ALLIED ARTS

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VOL. 3. MAY 1904 No. 5.

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MR. F. D. MILLET and Mr. Douglas Volk are to be numbered among the artists employed to decorate Minnesota's new Capitol Building. The former is to paint "The Treaty of Traverse des Sioux," and the latter, "Father Hennepin Discovering the Falls of St. Anthony."

MAKERS of plumbing goods are not nearly so slow to see what is needful as are many others connected with building, yet the one-piece enameled iron sink was an unaccountably long time in following the one-piece enameled lavatory. As things stand now, most of the large makers still think the separate sink and back with the unsightly joint and the inaccessible bug-breeder and roost behind, are good enough for the public; but these makers will have to fall in line behind some of the newer houses. Architects have been clamoring for these one-piece sinks for years, with scant consideration for the sentimental attachments or whatever it may be, that leads manufacturers to cling with such stand-pat tenacity to their antiquated forms. It is more than a suspicion that this attachment is closely linked with the advertising investment represented in these venerable patterns, for it often happens that the smaller and newer houses who are not hampered with this investment are the first to cut loose from outgrown ideas and to introduce goods worthy of the times.

A WORD ABOUT OURSELVES.

THE WESTERN ARCHITECT has not said much about itself in these columns, and we shall not say much now; but we cannot refrain from stating a fact that of itself says a good deal. Last week we received over sixty new subscriptions, in additon to a number of renewals, and as each one is accompanied by a check for $5.00, we feel that our work is appreciated by the profession.

The Minnesota Chapter of the American Institute of Architects held a banquet at the Commercial Club, Minneapolis, on Monday evening, May 2, with members present from both St. Paul and Minneapolis. This was followed by a business meeting and general discussion of matters of interest to the practice of the profession in the Twin Cities.

We are pleased to be able to report a revival of interest in this chapter, which contemplates regular meetings from now on, the instructing of the younger members of the old chapter and a general elevation of practice. With 18 members of the old chapter, it is expected to soon have at least forty actively interested, which, if realized, will probably mean that instead of the silence of the past eight or nine years, when Minnesota's name was called at the annual meetings of the Institute, a creditable report will be read.

NAVAL architects and their good friends, the landsmen, the contractors for battleships, are getting little joy and much worry from the war thus far. These patriots have succeeded in getting tremendous appropriations for big battleships of late years, and now that one after another of these monsters, after a harmless existence, suddenly seeks the bottom, undone by some active little "destroyer," our patriots raise something very like a wail and protest against the use of "sub-marines" at least. They haven't quite enough assurance to cry out against the surface craft, with which the Japanese appear really to have done their deadly work, for the building of these surface craft has, in a small way, in times past, helped to keep the wolf from the door. But in these days of $7,000,000 battleships the building of torpedo boats hardly begins to satisfy the patriotic longings of ship builders, so that the operations of Admiral Togo and his men are emphasizing the shortcomings of the battleship in a way that hurts. If he sinks many more of these absurd monsters, he will spoil the business of building them. They may represent what is really needful in modern progress no more truly than does the sky-scraper of our large towns, but the sky-scraper does not "turn turtle," at any rate.

Efforts to effect a consolidation of the Massachusetts Institute of Technology with Harvard do not appear to abate, and late reports indicate that the Harvard authorities are hopeful of ultimate success. One can see how Harvard should be eager for the accession even at the cost of a considerable endowment for the "Tech," and how under wise management the merger might have an improveed scientific school as an outcome; but it is also easy to see how the "Tech," as a part of a University, might lose a good deal of its present prestige. The Institute authorities may well canvass the position occupied by technical colleges in other universites and compare the output of such colleges with that of independent technical schools before coming to a decision. A careful canvass of this sort will not be favorable to the idea of consolidation. University authorities are constantly trying "to make one hand wash the other" in educational matters. Having a notion that unpopular departments need bolstering up, courses of study are continually being arranged so as to support these departments. Thus it happens that students, particularly in scientific and technical branches, are continually made to do much work which they—and their proper instructors—regard as a waste of time. Some medical students of a large university, lately complaining to one of their most popular professors that their rhetoric instructor compelled them to write about lilies-of-the-valley, were answered: "Rats! You may write about senna leaves for me, but that is all I can do for you." And the last part of the sentence was really a long ways from a joke. It is this tendency of the great university that gives the correspondence school an opening, and it might be added creates a condition under which the correspondence school graduate often shows to such advantage. It is a tendency hard to suppress at all times, and which, if not well curbed, is always exercised at the expense of scientific and technical departments. The courses at the Institute itself have become so loaded of late years with studies having only the most remote relationship to the proper needs of the technical student as to cause much hesitation about entering the school and doubtless to deter many from registering. Friends of technical education may well ask whether this tendency would not be exaggerated were the school to come under the wing of Harvard. It is a tendency which doubtless has much to do with a phenomenon which is giving some alarm to faculties of the older universities—the falling off of attendance, relatively if not absolutely. Western schools are attracting a constantly increasing proportion of western pupils, possibly because they confine their teaching more nearly to the needs of the pupil as well as because of improved equipment and instruction.

Advertising is chiefly chargeable with the existence of some scores of preparations of uncertain character, mainly made from cereals, which pass by the general name of breakfast foods—which sell all the way up to ten times as much, weight for weight, as good old-fashioned flours from the same cereals—which are "predigested," perhaps, and generally directed to be further made by sweets and milk into slimes that tempt small folk to breakfast from the spoon, without the healthful mastication and salivation ordained by nature—which send the said small folk from the table half fed, with pains in the equatorial parts and leave them in dolour for the day and with badly developed digestive tracts for all time.

Now, a tale is told accounting for the parentage of one of these degenerate foods which may not be altogether true, but of a truth is not altogether improbable. Everybody sees everywhere cheap publications called magazines, wherefore it follows that such are much sought by advertisers, in order that the name and fame of their wares may be seen of everybody. The tale is this—a moneyless genius, seeing all manner of breakfast foods selling, and by what means, conceived a "community of interests," proposed in fact to the managers of several cheap magazines this "proposition": they to take $50,000.00 in stock in a new breakfast food, and to pay for it with advertising; he to furnish the name and any other trifles necessary, such as a miller who would contract to make the stuff, a printer who would provide labels, etc. There may be more partnerships of this sort. Who knows?

The great Russian painter, Verestchagin, who lost his life in the explosion which sunk the battleship Petropavlovsk at the entrance to the harbor of Port Arthur, was in his 62d year. He entered the Russian navy at the age of 17 years, but saw no naval battles while in the service. He studied art with the late Jean Leon Gerome, whose methods of painting seem to have made little lasting impression upon the pupil. Verestchagin showed plenty of versatility in his work, some of his paintings of architecture, mainly oriental, bringing unstinted praise from discriminating people, although as a rule the professional critics bore down on him pretty hard. This was to be expected when his freedom from the conventions of the craft is taken into account; but in fact he could turn off a masterly piece of work when he chose. Some of his many paintings of the Taj Mahal are cited in proof of this. One of his pictures, "The Forgotten Soldier"—"a vast wilderness of mountains in clouds and over the clouds a hovering vulture," leaves it to the imagination to make the title good. But again he treats his themes without concealment, with a realism reminding one at once of the writings of Tolstoi. So much of his work was devoted to picturing war and its attendant horrors as to give color to the widely held belief that he painted with the purpose of arousing sentiment against war. It is told that the late Czar, on seeing an exhibition of his paintings in St. Petersburg, exclaimed, "This man is a revolutionary," and that Verestchagin was invited to call next morning at the Department of Justice, but that instead of doing so he improved the interval in reaching the frontier, beyond which he remained until some three years ago. Upon his return to Russia he is

quoted as saying, "I am in no danger,—the present Czar is a humane man, and I only paint what I have seen, not what I imagine."

Nothing could differ more widely from the art of Verestchagin than do the war pictures of the Japanese. It will be recalled that shortly after the war with China some five years ago, the Japanese stores in this country displayed—not always for sale—pictures of the war, mostly prints. These pictures showed sometimes considerable European influence, but whether this was prominent or whether the treatment suggested nothing of it, one might look in vain for evidences of slaughter. A scene might show a tremendous naval struggle, prodigious valor in evidence everywhere, with nobody hurt as yet. The action was always so well represented as to fill the mind and take the attention from the absence of carnage. Whatever may have been the motives of the artists, this ghastly feature of European pictures was absent.

PHOTOGRAPHING ARCHITECTURE.

PART THREE.

Amateurs should not take the formulae of American makers of plates and commercial papers too seriously. The imported formula is apt to be more legible as well as more scientific. Many of them come from countries not blessed with two or three sizes of ounces or drams, and often one is seen which appears to have been the result of intelligent experimenting. American formulae instead of being given in definite proportions, probably require ounces of this, drams of that, and grains of the other. If the amateur can weigh the grains or obtain the required quantities from solutions of known strength he is in luck so far. For the rest he is very likely left to guess what kind of measure was used by the author of the formula. He is lucky if he gets directions as to whether anhydrous crystals are to be used or not. The writer at one period passed through the ordeal of using "pyro" developer for plates. Finding so great a diversity of directions among plate makers he averaged a half dozen or so and here is the result:

Pyro proportions, average of several plate makers formulas. Anhydrous alkalis.

Stock solution A.

Pyrogallol, 30 gr. Water 1 oz. Sulphuric acid, trace.

Solution B.

Sulphite soda 90 gr. Water 1 oz.

Solution C.

Carb. Potash or soda 60 gr. Water 1 oz.

Take equal parts of A, B and C and three or more parts water.

While on the subject of plate developers a combined developer is given herewith that has come to be known as the "standby" among the group with whom the writer works. They use it, varying the proportions of the developing agents, for nearly all plate and film work, including copying and lantern slides.

The eikonogen is relied on to take care of the detail, the hydrochinon to give force and contrast. This developer is a trifle slow after some use, but the old will be found to be admirably restrained for over-exposures.

THE "STAND-BY."

Eichonogen 20 gr. Hydrochinon 40 gr.
Sulphite of soda 120 gr. (anhydrous).
Carb. potash or soda 160 gr.
Water 16.02.

Many trials with metol in combination with hydrochinon has led us to give it up entirely for plates and films, but the combination is very useful with developing papers, particularly when not too fresh.

It is to be remembered that a trace of bromide of potassium is usually necessary in developers for papers, and also that the "hypo" in which they are fixed must be acidulated—both alum and acetic acid should be used.

Old-time photographers and amateurs tell of saving from the baths the valuable metallic salts held in solution, but little is heard of such economies in these times. These waste solutions have a certain value, however, as some of them are excellent disinfectants—those containing "hypo" in particular will be found efficient in cleansing a sink or waste-pipe in need of such treatment.

A few solutions used in photography are violent poisons to some people, while curiously enough only a very few are affected by them. The writer has known two people who were as sensitive to a certain platinite toning agent as are some people to poison ivy. The developing agent "metol" was early said to be poisonous to some, but there appears to have been so little foundation for the rumor that it seems to have run its course. This developer is of great value in making prints on developng papers, and it is claimed to be able to develop shorter exposures than any other. This is possibly true, but for making negatives from normally exposed plates many other agents are more desirable.

Photography is so much a child of the light that, naturally, skill in lighting for exposures takes first place among the requisites for getting successful negatives. Makers of hand cameras are wont to launch their victims upon the unknown tide with a few general directions, leaving much for discovery.

These directions are of use, perhaps, to those who never get beyond the snap-shot stage, but they are often misleading to those who make a more thorough study of photography.

Outdoor lights vary so greatly that the most promising amateurs will spoil many a plate in gaining skill in exposing. Not only are there bright days and grey days, but the angle of the sun from the horizon has much to do with the photographic activity of light. This activity falls off surprisngly at the ends of a day. At lat. 45 degrees a plate will need, say five times the exposure at midday of a bright December day that it would need in a bright June day. In photographing architecture out of doors there is the still further complication in colors of materials. Red bricks in a somewhat confined postion will take more exposure than the novice will be apt to believe.

But is is to interiors we look for a test of skill in exposing. At times windows must be taken into the field which give a thousand times the light reflected by other objects necessary to get. No non-halation plates are sufficiently potent to overcome the difference, but it may be possible to close the windows during the greatest part of the exposure, then close the camera, open the window and expose a trifle more. This trick is sometimes carried so far as to darken a large window in the center of the field and by long exposure secure a good interior, then cover the lens, uncover the window, change the focus to the proper distance to show the landscape through the window, and then take a "snap shot" at that. Of course, the objects in the room will not during this short exposure coincide on the plate with the same objects already photographed during the long exposure, but the exposure for the exterior is so short comparatively that no harm is done to the interior in the interval.

As a last resort the mirror may be used to bring out dark parts of interiors. Flash lights are to be avoided if other methods will answer; but if used they should be mellowed in effect by placing sheets or other large reflecting surfaces so that they will have the effect of enlarging the source of light. Never forget that flashlights are dangerous and that they leave a disagreeable ash. It is also easy for ladies to believe that they kill house plants. Nothing is easier than mistaking the amount of flash needed for a given exposure.

Distance and dark surfaces absorb this light after their kind. An early experience of the writer taught how to value written directions for making flash lights. A room with much deep red decoration was to be photographed, and it was desirable to place the camera in an adjoining room at C. Then according to stock directions the flash was made at f "a little above and behind the camera." The developing of the plate brought hardly anything—except some thinking. Although belated, the thinking led to placing the flash for the next exposure at f2, with plenty of white reflecting surface back of it, when an amount of flash that had been valueless at first did the work the second time with satisfaction.

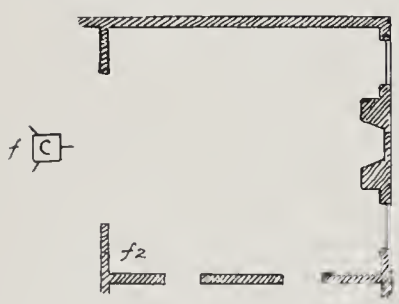

Fig. 1.

He who would photograph buildings with good effect will find enough obstacles to make the acquisition of really satisfactory negatives quite interesting. If he goes forth equipped with lenses and plates calculated to meet any case, he is as apt as not to find an unsuitable light, or he may find some obstacle in the way of a good view. Again, he may be obliged to use a lens of a focal length not altogether suited to the effect desired. Often in street work he will find it necessary to use a lens of too little focal length for good effect, but sometimes just the opposite will be true, as was the case with the photograph of the very interesting little church in St. Paul shown in Fig. 2. In order to make the best picture of the

FIG. 2—BETHLEHEM CHURCH, ST. PAUL, MINN.
Cass Gilbert, Architect

church itself at the time it was taken a point was selected where a lens with focal length about twice as long as the plate could be used. But the atmosphere was as clear as possible, so that objects on the distant bluff are entirely without the haze that would have distinguished them under more favoring conditions. Had a lens of less focal length been used from a position nearer the church, the church might have been shown the same size, and these distant objects would have been correspondingly reduced, much to the advantage of the picture.

In Fig. 3 is shown another St. Paul church, like the first, designed by Mr. Cass Gilbert. This picture is taken in a less brilliant light, and like the other, with a view not only to give an impression but also to record as much of the architecture as possible in one view. Here also a long focus lens is used, much to the advantage of the picture in this, that had the view been made from a nearer point, the gateway would have assumed undue importance compared with the building itself. Either picture might have gained by the substituion of color sensitive plates for the common plates used.

The Wisconsin Capital Improvement Commission are asking for plans for a new capital building that will cost $4,000,000 from Cass Gilbert, of New York and St. Paul, Ferry & Class and H. C. Koch & Son, of Milwaukee. The person or firm submitting the plans considered best will receive $2,000, the second best $1,500, and the third best, $1,000. Each competitor is also to be allowed $500 for expenses and time in examining the grounds and the plans must be submitted by Nov. 1st.

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FIREPLACE AND MANTEL IN SHOPS AND CRAFTSHOUSE OF
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SKETCH OF ST. STANISLAUS PAROCHIAL SCHOOL, ST. PAUL, MINN.
E. J. Donahue, Architect, St. Paul.

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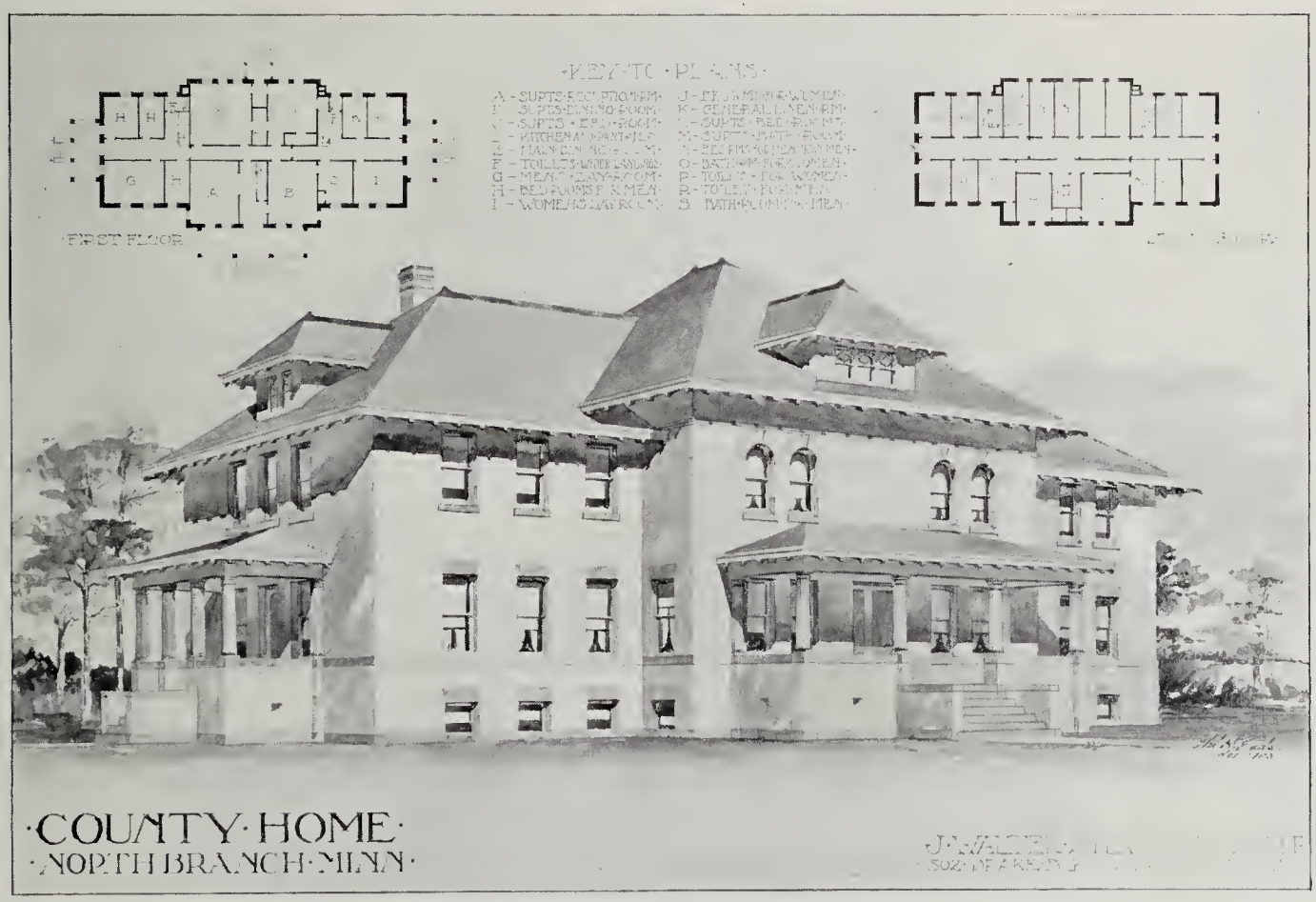
Fig. 3—ST. CLEMENT'S EPISCOPAL CHURCH, ST. PAUL, MINN.
Cass Gilbert, Architect, New York and St. Paul.



COUNTY HOME AT NORTH BRANCH, MINN.
J. Walter Stevens, Architect, St. Paul.

RECOLLECTIONS OF BOSTON. COPLEY SQUARE.

By E. P. Overmire.

In "Boston Town," a book published about 1880 by Horace Scudder, occurs the following words: "One of these days a person standing on Trinity (Copley) Square, will be able to see Trinity Church, The Museum of Fine Arts, The Museum of Natural History, the Institute of Technology, the Public Library, the Art Club, the Normal Art School and the Medical College." That day has long since passed. Copley Square now ranks first amongst Boston's parks as an attraction for the artist and student.

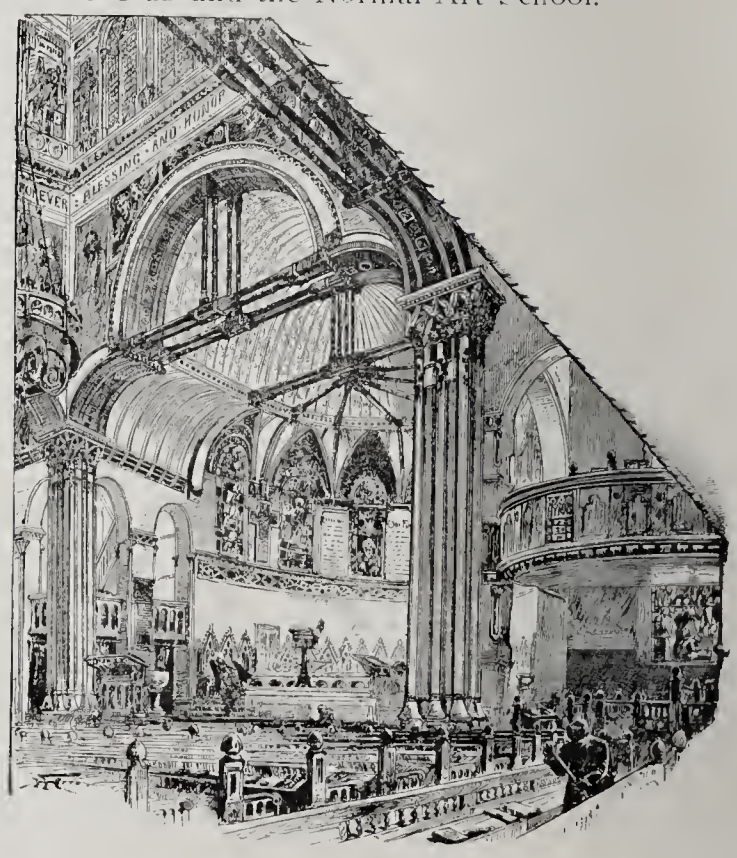
Although named as a park very recently, for the purpose of controlling the height and character of buildings that should bound it, the unique scheme presented for a sunken garden here would have given it note above that of any park of similar area in the whole country; it is quite possible that this scheme may yet be utilized. Triangular in shape and of very limited area, this square is a most refreshing spot to visitors and pilgrims, coming as they do from all civilization, to behold Boston's great literary and artistic treasure houses.

TRINITY TOWER

After passing the Common and Public Garden, one block out on Boylston street, comes the Lowell Institute and "Tech" buildings, and the Y. M. C. A. At the corner of Clarendon and Newbury (one block to the west) is Richardson's artistic Trinity Rectory, in which the great and good Phillips Brooks lived for many years. A little tale will illustrate the place which this building and its tenant occupied in the affections of the people. Two ladies, looking for the Art Club (which is a block further out) rang for admittance at the Rectory, to see an exhibition which was then on at the club. They were admitted and shown over the house by the ever patient and courteous rector, took in its art treasures and did not learn until about to leave that they had made an error and had imposed upon the good man. (A bachelor, too.) With profuse apologies they explained and were so heartily forgiven and asked to come again, that their own pleasure was exceeded only by that of the good bishop, who enjoyed their discomfiture most keenly. This incident was lovingly commented upon by the papers and people at the time.

TRINITY CLOISTER

At Clarendon street Huntington avenue branches off from Boylston street, and here one encounters the magnificent Trinity Church, which faces Copley Square, but is equally satisfactory from every point of view. Across the Square is the classical Public Library, to the left stands the Museum of Fine Arts, to the right of the library is the New Old South Church, one block further to the right is the Art Club, and on Boylston street are the Second Unitarian Church and Chauncy Hall School, while beyond the library are the Athletic Club and the Normal Art School.



TRINITY CHANCEL

Copley Square, as before noted, is the center of the literary and artistic life of Boston. It is accessible from South Boston via Dartmouth street, the only cross street (except Berkeley) until one reaches West Chester Park, some ten or twelve blocks further out. At certain hours of the day this square reminds one of a new Latin Quarter, the student element predominating in the throngs hurrying, some towards "Tech," some to the Normal Art School, or the Cowles Art School; besides these are the thousands of school boys and girls headed for the numerous Back-bay and South End, the Latin and English High Schools. In addition to all this the new buildings of the Horticultural Society, the new Symphony Hall and New England Conservatory farther out draw their throngs. One can thus easily understand the assertion that Copley Square is the great nerve center of literary and artistic Boston.

To adequately describe the wealth of beauty which adorns this square would be an arduous undertaking for any one. One feels compelled to begin with Trinity, both because of its being a pioneer here, and because of its artistic success. Every architect knows its history; my illustrations will tell more in one minute than I could in an hour of effort, so I will let them tell the beautiful story. The stone window tracery set into the cloister walls came from England and has a history. The front, now complete, was finished about ten years ago by Shepley, Rutan & Coolidge, who have faithfully developed the porches and towers in the true Romanesque spirit of their predecessor; it is very satisfying. The great mass of the central tower dominates the entire Back-bay district and is a most noble

NEW OLD SOUTH CHURCH

and masterly conception, exciting the admiration of foreign and domestic visitors alike. The only criticism that I have ever heard was upon the interior of the church, and pertained to the seemingly unnecessary exaggeration of the structural members of the central tower and above the choir, which are unpleasantly in evidence and could probably have been dispensed with. La Farge's decorations and the glass unite to give to the interior a most pleasing, religious expression, satisfying to the laity and the clergy alike. The view of this church from the Northeast is perhaps as satisfactory as any of the building.

The Museum of Fine Arts is of an entirely different class, pseudo-gothic in style. It is not a very satisfactory building to the architectural mind, but has served a worthy purpose and might easily have been very much worse, which may, possibly, be called "damning with faint praise." It was the first building in the United States where ornamental terra cotta was extensively used, this having been imported from England. One writer has expressed the idea when he said, "The Museum of Fine Arts lifts its dear, familiar, hideous facade on the south side of the square, where kindly ampelopsis in summer hides most of the brick and terra cotta.

The New Old South Church is Florentine in feeling, particularly its tower. It was built shortly after the great fire in 1872, which stopped just before reaching the Old South building and led to its abandonment and the construction of this building in Copley Square. It is of Caen stone. The tower is 235 feet high and has a slight "lean," due to settlement in the foundation, which is not surprising when one knows that all this district is "made" ground. Sitting beneath the huge copper lantern, the writer heard an eloquent sermon by the Rev. Geo. A. Gordon. The interior is somewhat impressive, but suffers in comparison with its neighbor on the opposite side of the square.

THE PUBLIC LIBRARY

The new Public Library is the youngest of the notable structures bordering Copley Square, and naught but praise can be spoken in her behalf. While pardonably prejudiced, the writer feels assured of general support in classifying this as "the noblest Roman of them all." It is a building that appeals only to the cultivated mind. Your hustling tourist would not spend five minutes in studying its exterior, but to the cultivated mind it is worth going a thousand miles to study. Conceived in the best of Italian Renaissance, feelingly proportioned, refinely detailed, its ensemble enthralls the artist, just as a great musical climax, or a great orator's eloquence masters one. It breathes the

spirit of devotion to high ideals, and is an object lesson of what can be accomplished through consistent fidelity to a high conception. Internally it is a constant succession of pleasing sensations, beginning with the vestibule and entrance hall, the noble staircase with its great leonine memorials of the officers and men of the two Massachusetts volunteer infantry regiments and its noble arcade and coffered ceiling; Bates' Hall

LIBRARY STAIR CASE

with its impressive scale and splendid marbles and furnishments; Delivery Hall with Abbey's paintings of "The Search for the Holy Grail," and Sargent's paintings in Staircase Hall on the third floor, illustrating "The Triumph of Religion." This is the Special Library Floor.

BATES' HALL

The Court is done in Pompeian brick and terra cotta, with Milford pink granite for the colonnade, which runs around three sides. The Stack Room occupies the rear of the building and will accommodate over one million volumes. This building cost over two million dollars.

An idea of the care exercised by the architect in studying his proportions for this building is had from the fact that when it had reached Bates Hall level (the string course immediately above main entrance) he had a full sized model of the cornice erected at full height on a staging at one corner, and from this model made his final design for this important member This gave rise to a report that the building was to be completed above that level in wood because of a lack of funds to continue it in granite, which was, of course, an absurdity, but was seriously reported by the newspapers at the time. Any person who saw the design of the library building which was actually commenced here (which was repudiated and the work already done blown out) cannot but feel that the reputation of Boston as a center of art and culture was in the balance, and but for vigorous action of the committee in charge would have suffered for all time to come.

TRINITY CHURCH

The construction of the present building has given to Boston world-wide fame, likewise to its architect. It is to be hoped that the scheme for a sunken garden in this square may be realized soon, as it will enhance immensely the effect which the Public Library exercises over Copley Square.

COPLEY SQUARE AS IT IS

ART AND ARCHITECTURE.

Whether or not an architect is an artist is a question that has recently been troubling the board of appraisers of New York. Judge Somerville has finally handed down a decision declaring that he is.

The test arose over the case of Arthur Bohn, an architect and an American citizen, residing temporarily in Europe, who submitted a design for an art museum for the city of Indianapolis. The preliminary sketches presumably made in America, impressed the committee of the art associaton favorably and won acceptance. The pen and ink drawings, made abroad, came along in due time, and were assessed 20 per cent under the regular tariff schedules. The law was very plain, in fact "pen and ink sketches" appeared word for word in the paragraph covering the case. It looked as if the duty would have to be paid.

One loophole appeared. A later paragraph places on the free list "works of art, the production of American artists living temporarily abroad," and under this an appeal was made. Had the object assessed been an oil painting or a piece of statuary there would have been no room for doubt. The question was, whether or not a pen and ink sketch, clearly not a work of art in the sense of being striking enough or beautiful enough to be used as an article of virtu, an object of decoration or adornment, but representing the guide work to the construction of something very beautiful, and containing within itself the essence of art, representing the patient labor, and embodying the plans and ideas of a man of artistic temperament and high ideals, is or is not a work of art. The court holds that it is.

This decision will please every lover of architecture in the country. It is not that the architect cares anything about being told that he is an artist. This he knows, just as he knows that it is not given to every architect to be a great artist, nor to every painter or every musician. The gratification will come from the sense of being appreciated, from the knowledge that there are men outside the profession and unfamiliar with its technique who have, nevertheless, the discernment to place the work of an architect where it belongs, and grasp the fact that in designs or sketches not essentially beautiful in themselves there may be embodied as much of artistic effort as in the picture or the statue, the architect's designs often standing for his ideals in much the same way that the notes on the printed sheet stand for the symphony conceived by the musician.—Minneapolis Journal.

A great architect with the pen—that is, one who seems called upon to write upon the subject on account of the absence of commissions, has in his dearth of ideas called attention to the complications between architects and owners and also says something about the general reputation of architects from a business standpoint, a lack of thoroughness in their work and attention to details which prove expensive many times to the owner and the consequent difficulties arising therefrom. This matter was touched upon a few days ago by a well known practitioner, in which he said that a client who had expended many hundred thousand dollars in building had told him this was the first time that he had got through with an architect with perfect satisfaction on both sides, and there had not been some dispute about extras or commissions. The question was asked the architect why this was so, and he replied that this is not only true of the architectural professions, but of other professions. His experience in his own profession was that as soon as an architect had got through his immaturity, through his adherence to theory, rather than practice, and was capable and able to give the client value received, he immediately began to neglect his work to take up golf or go yachting, or indulge in social excesses which interfered with his success. He was given to staying too long at the club, believing that "the boys" in the office could attend to that which in many instances had cost the client many hundreds of dollars through slight inaccuracies and errors in the work. He thought more of them would make a success in the profession if they would adhere more closely to their business. "The boys" in the office do the best they know how, and on most occasions do their work accurately, but there are times, as most every architect has discovered, that a trifling error overlooked in the plans often costs the owner much money and is the course of great dissatisfaction upon his part. It is only practical application through long years of experience that men are enabled to discern intuitively where the trouble will come and the work can no more go along without their attention than anything in the world. It is just at this point, said the young architect, that attention is necessary, and, furthermore, it is this kind of attention that reflects credit upon the architect as well as brings him commissions.

The modern merchant who never advertises escapes a lot of trouble. He may keep out of some of it without intending to do anything of the sort, but he escapes it just the same. He gets rid of the trouble of preparing advertisements, and, of course, has no worry about changing them and keeping them fresh and up-to-date. He is not bothered about the way his advertisements are printed, nor the position they occupy. He can say, with much truthfulness, that it is no trouble to show goods, for he is seldom asked to show any. But his greatest saving of trouble is in not having to sell goods to people who stay away, but who would come to his store if he advertised. Then, as he sells few goods, he has few goods to buy, and there is more trouble saved. He never has the trouble of selecting and paying a large staff of assistants. He gets rid of the trouble of having to pay for advertising. Finally he never has the trouble of enlarging his store, or of removing to a bigger one, and it is very little trouble to count his money. Strange, what a lot of trouble a merchant makes for himself by advertising.—Retailer and Advertiser.

PAPER READ AT THE MEETING OF THE TWIN CITY ARCHITECTURAL CLUB APRIL 15TH, 1904.

By R. T. Giles.

A stained glass window is itself the best possible illustration of the difference it makes whether we look at a thing from this side or from that, and is alive with meaning and color only when we view it from the interior. White glass would seem to have been known to the Chinese 2300 B. C. Historians tell us that the Egyptians made jewels of colored glass five if not six thousand years ago. It is more than probable that this was the earliest use to which stained glass was put. In some of the most ancient tombs have been found scarabs of glass in deliberate imitation of rubies, sapphires, emeralds and other precious stones.

The Greeks and their Roman successors made glass in imitation of agate and onyx and all kinds of precious marbles. They devised also colored glass coated with white glass which could be cut cameo fashion, a kind of glass much used, though in a different way, in later medieval windows. So far, however, glass was used in the first instance for jewelry and in the second for vessels of various kinds. Its use in architecture was confined mainly to mosaics originally, no doubt, to supply the place of brighter tints not forthcoming in marble.

Of the use of glass in windows there is not very ancient mention. The climate of Greece or Egypt and the way of life there, gave scant occasion for it. But at Pompeii there have been found fair sized slabs of window glass not of very perfect manufacture, apparently cast not very translucent. Remains also of what was presumably window glass have been found among the ruins of Roman villas in England. In the basilicas of Christian Rome the arched window openings were sometimes filled with slabs of marble in which were piercings to receive glass, foreshadowing, so to speak, the plate tracery of early Gothic builders.

The windows of early medieval Flemish churches were often filled in this Roman way with plates of stone pierced with circular openings to receive glass.

Another Roman practice was to set panes of glass in bronze or copper framing, and even in lead. Here we have the beginning of the practice identified with medieval glaziers.

There is no reason to suppose that the ancients practiced glass painting as we understand it. Discs of Greek glass have been found which are indeed painted, but not with color fused with the material, and certainly these were not used for windows.

The very early Christians were not in a position to indulge in or even desire luxuries, such as stained glass windows. As St. Jerome made allusion to them, it is pretty certain that these must have been simple mosaics in stained glass unpainted.

Stained and painted glass may possibly date back to 800 A. D. It may safely be said not to occur earlier than the Holy Roman empire. There is one particular account of the furnishing of the chapel of the first Benedictine monastery at Monte Cassino with a whole series of windows in the year 1066, which fixes the date of the Norman conquest as a period at which stained glass windows can no longer have been uncommon.

It appears to be agreed that no complete window of the ninth or tenth century has been preserved. There is nothing that can quite certainly be identified.

The great mass of early Gothic glass belongs to the thirteenth century; and when one speaks of early glass it is usually thirteenth century work which is meant.

It is usual to confound stained and painted glass Literally speaking, these are two quite distinct things. Stained glass is glass which is colored in the pot—that is to say, there is mixed with the molten white glass a metallic oxide which stains it green, yellow, blue, purple, and so on, for which reason this self tinted glass is called pot metal. Pot metal is glass in which the color is in the glass and not painted upon it. A varied colored window could only be produced by breaking the sheets and putting them together in the form of a mosaic. That is how the earliest windows were executed.

In painted glass the color is not in the glass, but upon it, firmly attached by the action of the fire. A metallic color which has some affinity with glass is used as a pigment. The painted glass is then put into a kiln and heated to a temperature at which it is on the point of melting. By this means it is possible to paint a colored picture upon a single sheet of white glass.

Strictly speaking, stained and painted glass are the very opposite one to the other, but in practice the two processes of glazing and painting were never kept apart. The very earliest glass was no doubt pure mosaic. Painting was at first always subsidiary to glazier's work. After that for a time glazier and painter worked hand in hand upon equal terms. Eventually the painter took precedence and the glazier became ever more and more subservient to him. But from th twelfth to the seventeenth century there is little of what we call art glass, in which there is not both staining and painting. Painting is only used to give expression to the stained glass.

A generation ago the making of stained glass windows was considered a lost art. Today this art industry has attained a very high standard and has become very popular. Artists follow the old school today without any important variation from the methods of eight centuries ago.

We first find from the architect the desired space and shape to be treated and a design is made to the necessary requirements in a water color sketch to show the general design and color scheme. If this design should prove satisfactory a full size detail drawing is made to work from, showing exactly how the different pieces of glass will be cut and afterwards framed together with lead or metal, following the lines indicated on the drawing. Should the subject require the assistance of glass painting a cartoon is then prepared of the ornamentation or figure for the glass painter to work from, which is copied very carefully.

A transfer drawing is then made on heavy paper with each piece numbered so as to avoid any complication. This transfer drawing is then cut according to the lines indicated by a pair of three-bladed scissors, which leave between their parallel blades a space sufficient for the heart of the leads between the glasses, thus:

These cut out patterns are placed over the glass selected by the artist according to his colored sketch and cut exactly the same size as the pattern. Should this glass require painting it is taken to the glass painter, who, after tracing his general outline in mineral color, fastens the several pieces to a glass plate with wax, which is put on the easel, it being necessary to have the light shine through so that the glass painter can judge his modeling in light and shade, and is afterwards fired in the kiln. Whether these pieces of glass are painted or not they are laid out on the detail drawing and the lead glazier twists the flexible lead around them, soldering each joint to make same fast. A special cement is then applied to make the whole water tight.

The window is now complete, ready to be placed in position, which is secured by copper wires fastened to transverse bars of iron to resist the wind pressure.

The principal glasses used in the manufacture of stained windows of to-day are antique, cathedral and opalescent.

Antique is blown glass in pot metal, and may be also flashed whereby one side would be red and the other side white or different combinations of colors, and is specially tempered for painting purposes. Antique glass is made exclusively in Europe.

Cathedral glass is rolled and is less expensive than antique or opalescent and is made in both Europe and America.

Opalescent glass is of American manufacture, and is made of such a nature that it will not permit of the use of paint and when subjected to the fire invariably turns dense and almost black. Opalescent glass makes a beautiful varied effect with its changing hues and powerful color. For drapery effects, they have a method of rolling molten glass flat and twisting the edges with tongs, which gives a wide variety of forms and depths of color. This material is often plated with several thicknesses to obtain the desired effect, and is best adapted for quaint or strong character draperies; also for strong powerful landscapes and mosaic effects and ornamentation.

Windows are made to-day following the different decorative motives of ancient periods to the most modern styles.

A famine in window glass is apparent. The window glass factories have not been in operation since last June, as the manufacturers have been haggling over selling rates and a wage scale.

Stocks have been reduced to a minimum. The Baltimore fire has created a demand for glass which can not be met if all the factories were to start tomorrow This will result in big importations from Belgium.

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ELABORATE BRONZE WORK.

The above elaborate piece of bronze work is one of two pieces to be placed at each side of the main entrance to the United States Mint, at Philadelphia. The material of which they are made is cast bronze, and their separate weight is in the neighborhood of 1,000 pounds,

while their cost is about $2,000 each. It is not a little surprising to those who are unfamiliar with the magnitude, skill and responsibility of some of the representative manufacturing concerns of the "wild and woolly" west that such a fine piece of work emanates so far from the cultured and elite east, as the wax patterns, modeling, casting and finishing was entirely executed in Minneapolis, where the concern that made it employ only the highest of skilled labor. In the finishing of these pieces of beautiful bronze the whole surface was chased in the same manner a gold-smith might engrave a gold watch case, the chasing alone requiring the constant work of six men steadily for six months' duration to complete them. There are but few firms in the United States that could turn out so creditable work of this kind, and certainly none could excel them. It requires a great deal more of skill and care in the executing of such delicate details than the public can realize.

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GREED AND CORRUPTION.

The testimony before the inquest into the Hotel Darlington disaster in New York repeats the depressing revelation of lawlessness due to private greed and official cupidity made in the Chicago fire inquiry. It will be remembered that the Hotel Darlington collapsed before it was finished and killed a large number of people. The secretary of the realty company testified with the utmost frankness that the plans on which the building was being constructed were not approved by the building department. It does not appear with certainty that any plans were submitted to the building department, though the original plans drawn by the architect were better than those afterwards substituted. The architect was instructed to plan the building in the cheapest possible manner. The plans made on these instructions were rejected and others substituted which saved thirty per cent in the cost of iron. These substitute plans were provided by the lowest bidder. This is the familiar game of making a low bid for jerry work, after plans as cheap as the law will permit have been adopted, and then surreptitiously changing the plans. There does not seem to be the least doubt that the building collapsed because it was not strong enough to stand. The owners and contractors violated the building law to save money and the building department let them do it, probably for a corrupt price. The natural remedy would be to put them all in jail; but that is not the American fashion.—Minneapolis Tribune.

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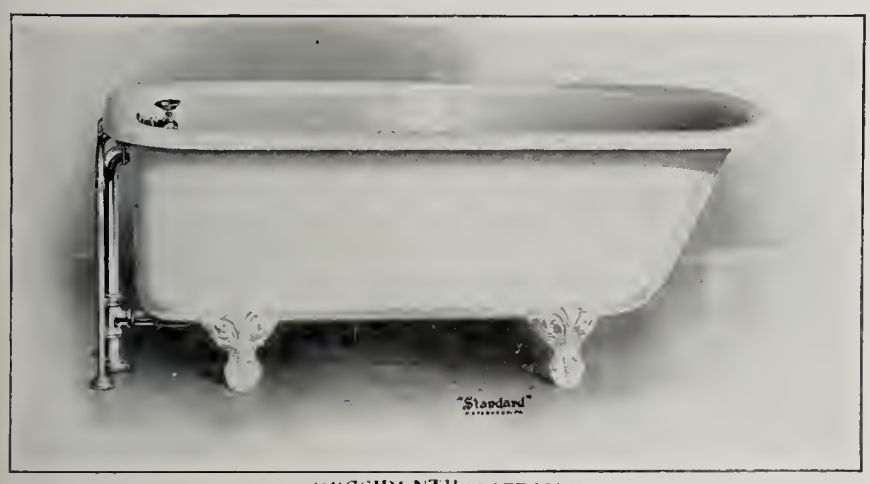

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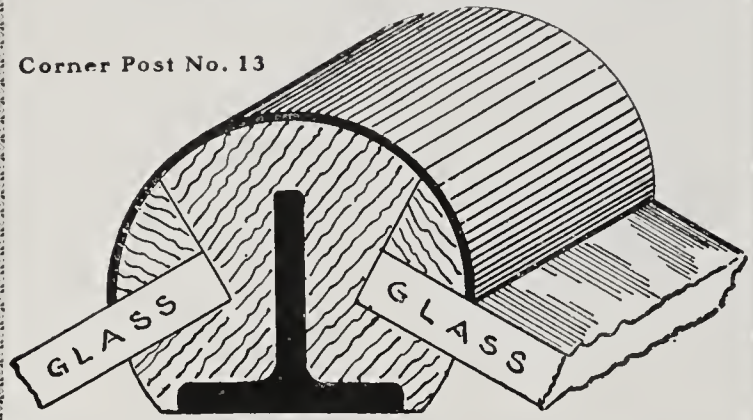

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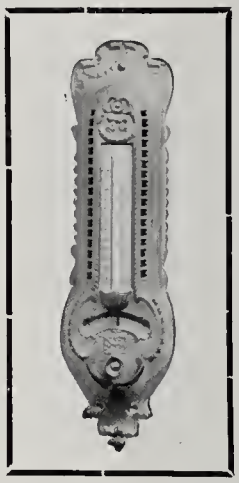

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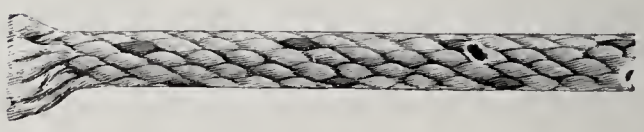

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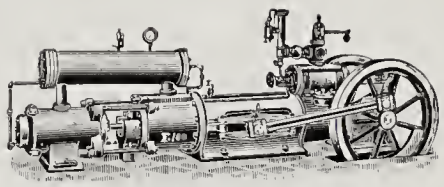
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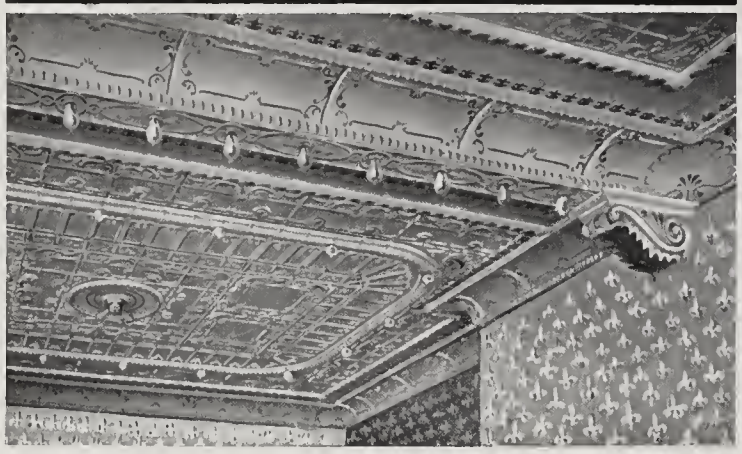

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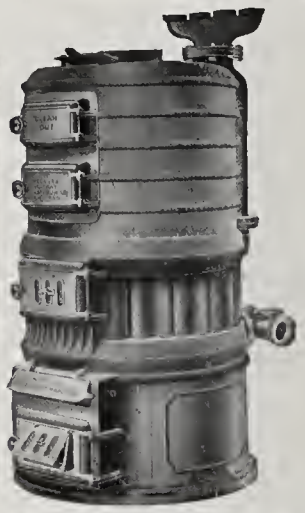

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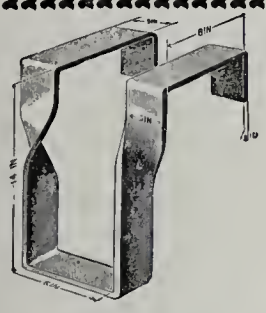

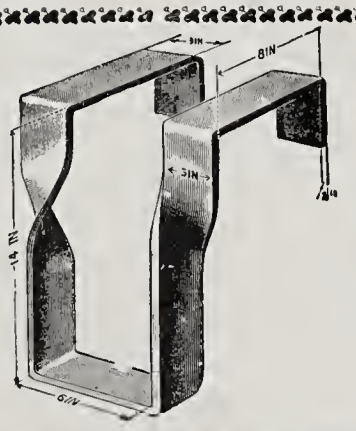

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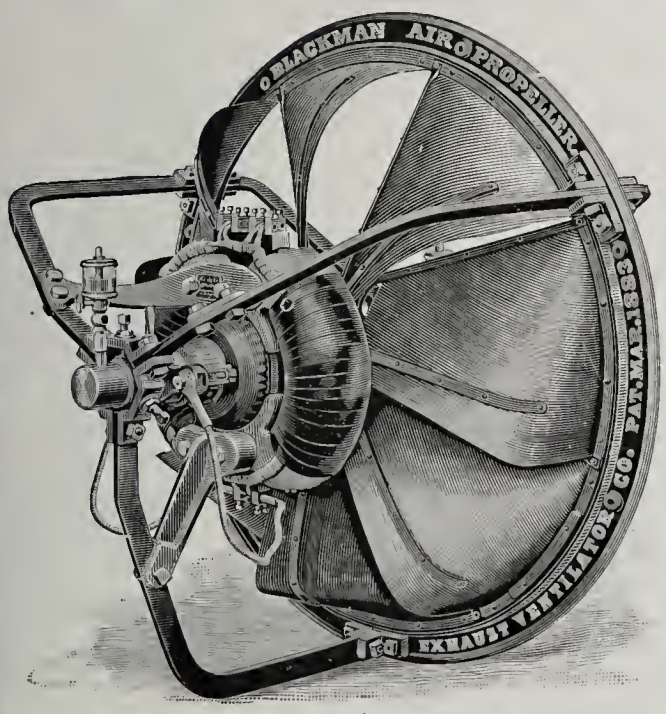

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SECOND. That we not only consented but joined in the request to reopen the case to permit further evidence to be submitted.

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FOURTH. **That end-matched flooring has not been advanced in price** and **will not** be at any time, any more than is warranted by the usual conditions governing the lumber trade.

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SIXTH. That it makes a better floor.

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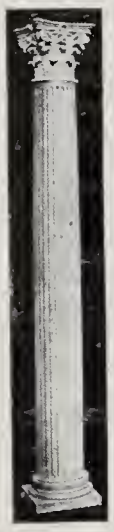

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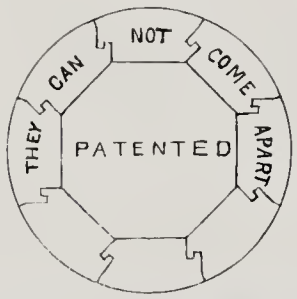

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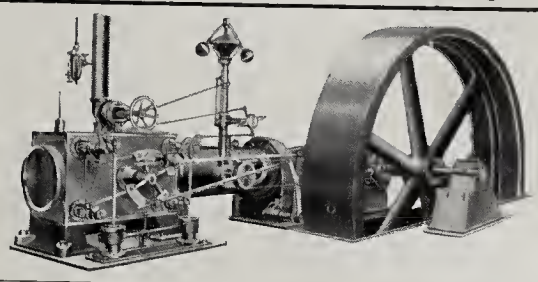

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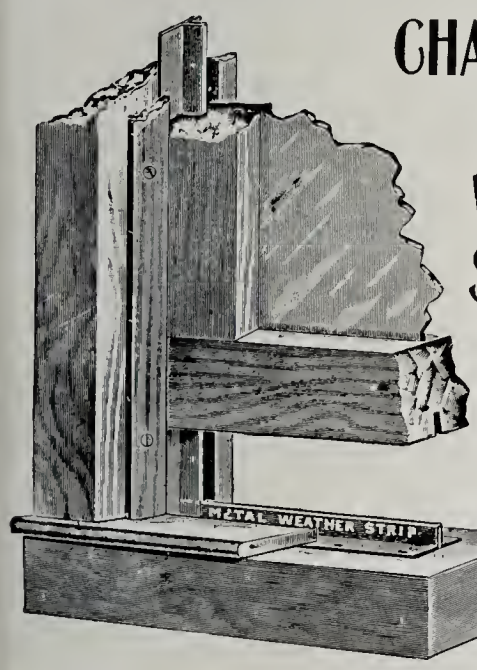

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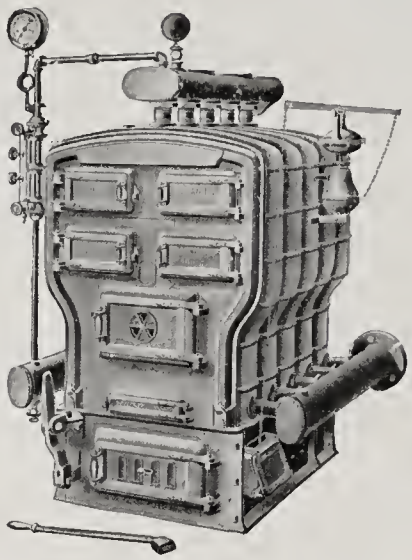

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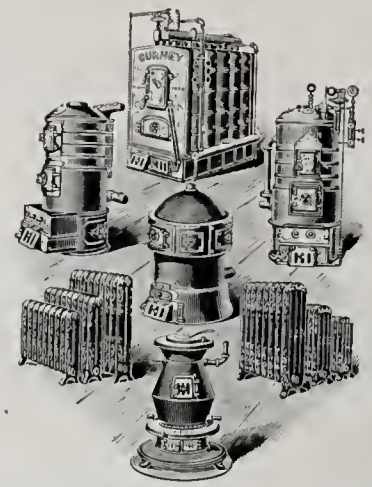

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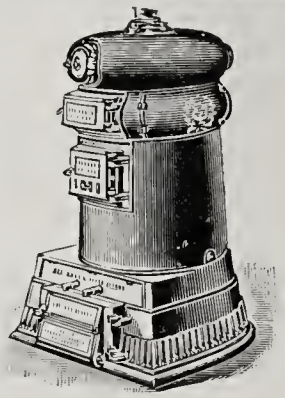

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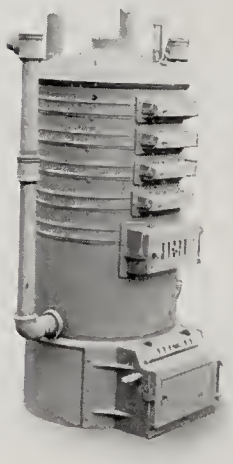

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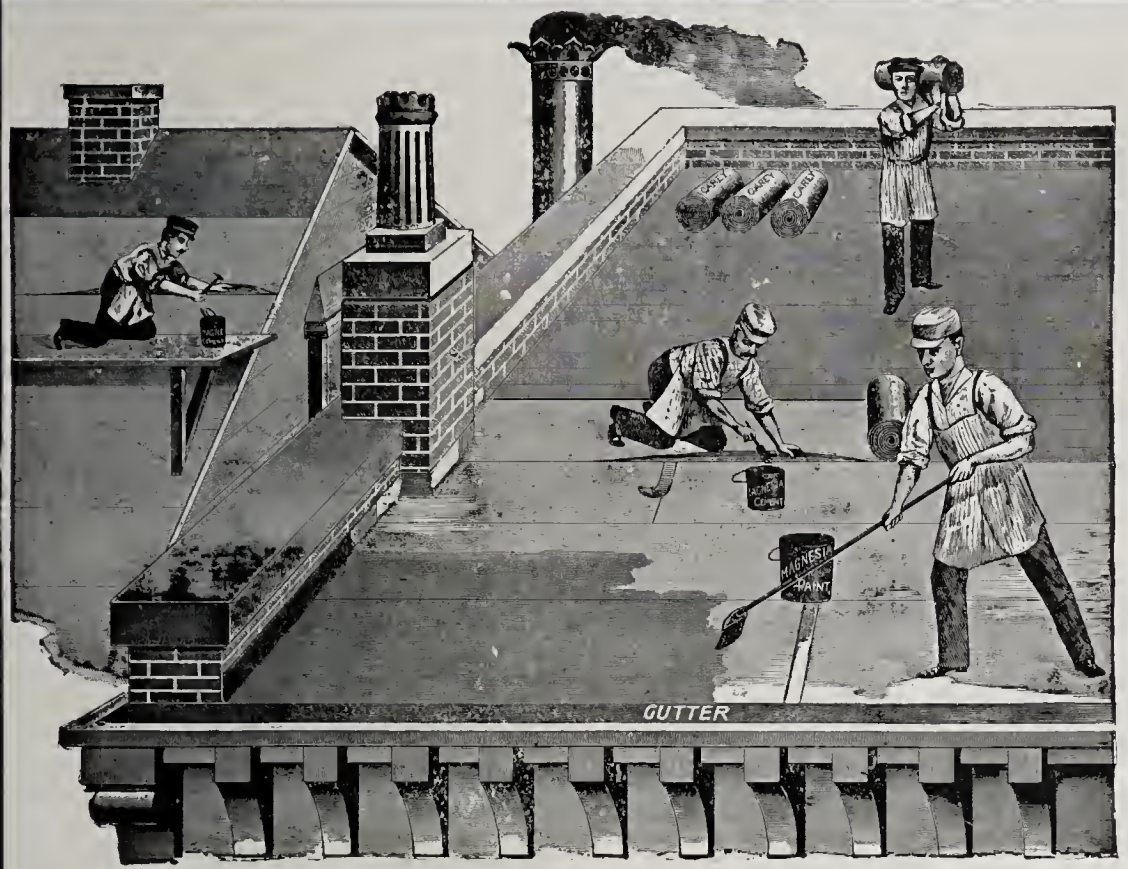

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OBITUARY.

Mifflin E. Bell, architect, Chicago, died on Tuesday, May 31st, of pneumonia. Mr. Bell was born in Chester County, Pa., and went to Illinois in his youth. When twenty-six years old he became superintendent of construction of the Illinois state capitol, and later was architect of the state capitol of Iowa. Before the latter building was completed, Mr. Bell was appointed supervising architect for the treasury department at Washington. He was then thirty-six years old, and the youngest man ever chosen to such a position. The architect served under President Arthur and Cleveland until 1887, when he removed to Chicago, continuing his work. Mr. Bell left a widow, two sons, Henry Van Hoff and Dillwyn M. Bell, and three daughters, Mrs. A. M. Jerrems, and Julia and Susie Bell.

MR. CLARKE MERCHANT, (DECEASED.)

A loss keenly felt in the business world, as well as to his hosts of friends and admirers all over the country, is that of Mr. Clarke Merchant, who died recently in Philadelphia. Ever since the war, Clarke Merchant has been engaged in commercial life, and through his industry and business integrity built up a business of great magnitude in the brass and copper product line. Mr. Merchant comes from a fighting stock, his grandfather, George Merchant, being a soldier in the War of 1812. His father was one of the first cadets to West Point and subsequently served in every rank in the army up to colonel, with which rank he was retired.

It was during his father's army service that Clarke Merchant was born, having come to light in Oglethorpe Barracks Savannah, Ga., September 30, 1836. He entered the United States Navy in 1854 as a midshipman and graduted in 1857. Before the Civil War he served in the Pacific ocean squadron. In 1860 he was promoted to the rank of master, and under that commission served on the sloop of war Germantown. When United States Minister Ward went to Pekin, Clarke Merchant was the executive officer on the steamer Toey Wan, on which the trip was made. During the bombardment of the Chinese forts by the English, on the Pei-ho river, he was present. Later he served on the Mediterranean squadron on board the Susquehanna, but returned to the Pacific squadron where he served as flag lieutenant and ordnance officer.

When the Civil War broke out, Mr. Merchant was transferred to the Atlantic squadron and served on the Roanoke as lieutenant. During the year of 1861 he was promoted to executive officer, and served with distinction as such throughout the conflict. About the close of the war he was promoted to the grade of lieutenant-commander on board the training ship Constitution, but resigned soon after and commenced a business career in Philadelphia, becoming a member of the firm of Carman, Merchant & Shaw, agents for the Pacific Mail Steamship Co., but later establishing himself in the tinplate and metal business under the firm of Clarke Merchant & Co., (Incorporated.)

This company distributes as great a quantity of brass and copper goods as any other metal house in the United States and all this insures the dealer and consumer bottom market prices and the promptest mill shipments.

Merchant & Co. are also manufacturers of babbitt metals solders, etc., and carry one of the largest stocks of brass and copper products carried by any single manufacturer or jobbing house in this country.

SPECIAL ESCUTCHEON AND KNOB FOR STATE CAPITOL HARDWARE.

The newspapers and the public have been disposed to comment on the slow progress of work on the new Minnesota State Capitol building. They do not realize the size and character of the structure. Those fully familiar with the facts are of the opinion that progress has been as rapid as possible, consistent with securing only the best results. The amount of work and material required in a building of this character is almost beyond conception, so far as the general public is concerned. One of the minor features is that of the trimming hardware, and a few statistics covering that detail are interesting and suggestive. THE WESTERN ARCHITECT is indebted to Mr. H. B. Gardner for the facts in this connection, and they certainly are rather formidable.

The principal quantities of the various lines of hardware for the four floors above the sub-basement are as follows:

Master keyed cylinder locks	377
Three bolt communicating locks	115
Three keyed pintumbler wardrobe locks	218
Special escutcheons with state seal, 4x20 in	144
Special escutcheons with state seal, 3½x12 in	195
Special escutcheon plain, 3x9 in	740
Special design knobs, 3 inches in diameter	84
Special design knobs, 2½ inches in diameter	886
Paracentric keys for cylinder locks	1,862
Ball bearing butts, 6x6 in	1,330
Ball bearing butts, 5x5 in	75
Ball bearing butts, 6x8 in	30
Five knuckle bronze butts, 4x4 in	226
Five knuckle bronze butts, 3x3 in	328
Five knuckle bronze butts, 2½x2½ in	220
Bommer spring hinges for marble	114
Bommer spring hinges for regular doors	48
Kick plates	80
Matchless floor hinges	48
Liquid checks and springs	181
Door holders	215
Lever flush bolts	84
Ball bearing window pulleys	1,000
Giant metal sash chain, ft	6,000
Special sash locks	250
Special sash lifts	500
Special sash sockets	250
Pull down hooks on poles	100
Howarth sash centers	180
Half flush transom catches	180
Bronze coat and hat hooks	950
Bronze drawer pulls	326
Taplin's patent stop screws and washers	12,096

The fact that much of this material is of special design of unusual sizes, makes the showing more notable. While it is what the men in the trade call a large bill of high-grade hardware, its cost is about one seven-hundredths part of that of the entire building, about $8,000.

Ten different manufacturers had a hand in the production of these goods, including some of the best known concerns in the country. The special design hardware was made by the Reading Hardware Co., from designs original with Cass Gilbert, the architect. The material is now nearly all at the building and is being put in place as rapidly as possible by the Gardner Hardware Co., of Minneapolis, who furnished the entire bill. They have also recently been awarded the contract for all the cabinet hardware for the telephone booths, wardrobes, etc.

PAINTS AND VARNISHES.

Painting and the parts of building operations usually carried out by painters, probably give architects five times as much annoyance and worry as any other like money expenditure that comes under their control. We have known architects of experience to declare that they had about made up their minds never to contract another piece of painting or hard wood finish, or, at least never to let work to any contractor whom they did not know thoroughly—that while they could form some idea of what materials were being used in any other department of building work, the ways of the devious contracting painters were past finding out—until he was paid off and it was too late.

If a supervising architect has ambitions as an amateur detective, he may take pride in coming up with a slippery contracting painter, but the ordinary architect does not enjoy taking samples of goods to an analytical chemist.

Architects of experience almost without exception have therefore come to rely upon the goods of certain makers of paints, varnishes, and the like, knowing that if the goods are used honestly and intelligently the chances of failure are slight.

In fact the business of manufacturing paints and varnishes is at present conducted more nearly according to wholesome trade laws, than that of most other building supplies.

There is wholesome competition among manufacturers, who apparently have access to a free market for nearly all their raw materials, and they place their finished goods on the market upon their respective merits at prices that enable them to keep up a high standard of excellence.

The retailer who wants to build up a reliable business can select among brands of mixed paints and varnishes, goods which he knows will fill the requirements if he can get them used without adulteration.

We may mention the Twin City Paint Company of Minneapolis, as a house that is trying to supply their large market with goods from houses who have reputations too valuable to risk by turning out questionable goods. Their leaders are Pratt & Lambert's varnishes and Lower Bros.' paints, which have made such an enviable record as to lead to their selection for painting such buildings as the Lumber Exchange Building and International Exposition Building, Minneapolis; White Enamel Refrigerator Co.'s factory, St. Paul; Mr. E. E. Fisher's residence, Lake Minnetonka; Mr. W. C. Pike's five houses, 612-20 East 25th street, Minneapolis; Court House, Minneapolis, and the Andrus Building, Minneapolis.

CATALOGUE OF FIRE-PROOF WINDOWS, DOORS, ETC.

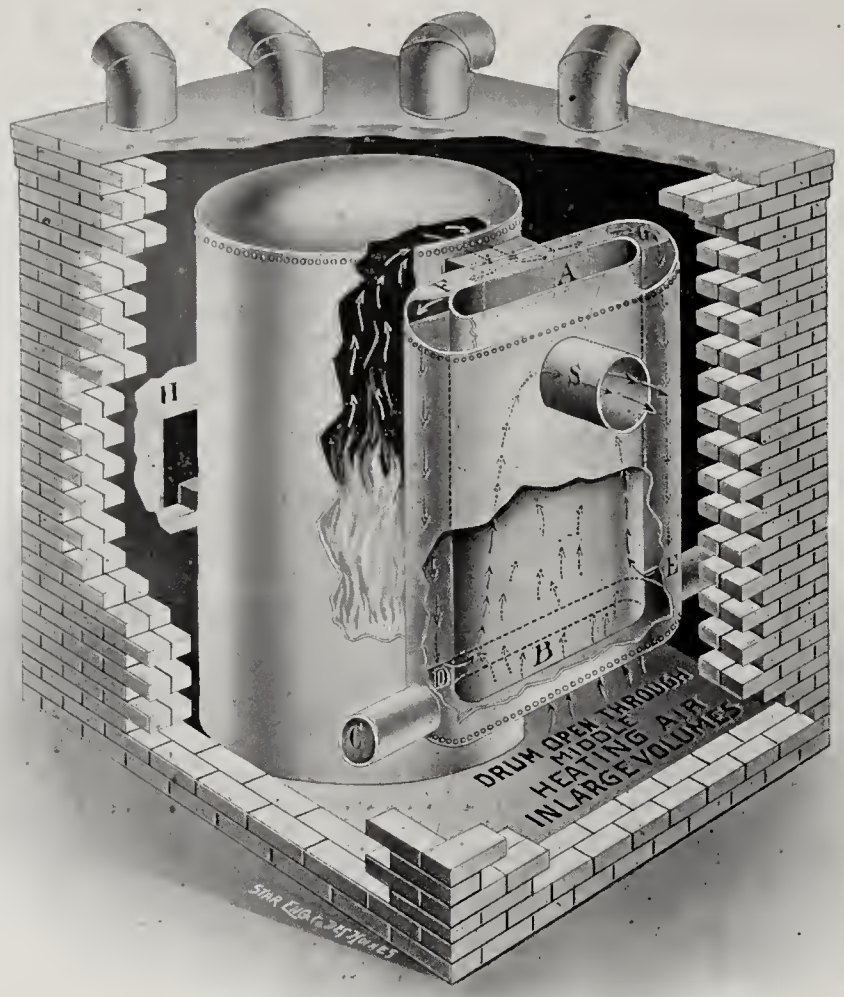
With the possible exception of fire-proof wood, more attention is now being given to the question of window and doors, that are fire-proof, or would be fire-proof in the event of a fire, than any other item that enters into the modern building. We have been lead along these thoughts by the receipt of the St. Paul Roofing & Cornice Co.'s new catalogue of fire-proof doors, windows, etc., showing in halftone illustrations the tests of the fire-proof qualities of frames and sash fitted with wire glass. The test proved all that could be desired in defying the flames and in keeping the heat from penetrating to the inside of the test-buildings.

Another special feature of this catalogue are the illustrations of noted buildings which are equipped with Pruden's Patent Metal Sash and Frames. They include the J. B. Lippincott Co. building, at Philadelphia, the Marshall-Wells Hardware Co.'s building at Duluth, Foley Bros. & Kelly's large wholesale warehouse in St. Paul, as well as the large, new building for the Hibbard, Spencer, Bartlett & Co., of Chicago.

The catalogue also shows cuts of designs in detail for metal corridor trim and sash, as well as the automatic working of fire-proof windows. Take it all in all this latest catalogue of the St. Paul Roofing & Cornice Co., will give all information that is necessary for either architect, owner or contractor in the way of fire-proof doors and windows, and the company will be pleased to mail one to any person that is interested in these modern appliances, upon receipt of their name and address.

GIVES UNIVERSAL SATISFACTION.

The cut following illustrates our new brick set furnace, which we make in three sizes. These furnaces are especially intended for school houses and large church jobs. The combination attachment for heating hot water radiators as shown in our 1904 catalogue on page 22, may be used on these furnaces if desired. A very fine system for school houses may be had by using hot water coils on the outside walls of each room, and a hot air register on the inner wall; the hot air to be conducted to the rooms by means of brick flues as is used where indirect steam heat is used in connection with a fan system. We furnish, when desired, with these furnaces, a battery of water tanks, which are placed inside of the brick work for the purpose of supplying moisture and retaining heat. There is no system of heating that will furnish as moist and balmy air as can be furnished with our hot air and combination furnaces by the evaporation of water in open tanks placed within the casing.



INSIDE CIRCULATION FOR RESIDENCE HEATING.

There is a feature in connection with hot air heating that a great many do not look at in the right light. That is the matter of ventilation, or inside circulation of air. It appears that the first thing a great many people think of, or demand, when they are approached on the subject of hot air heating, is that of an outside cold air duct. The same people, if approached on heating with hot water or steam systems would not think of asking for a cold air duct to be brought in from the outside. Some people seem to think that the cold air duct from the outside is an essential thing for the successful working of a hot air furnace. This is not the case. Much better results may be obtained by cold aid ducts from the inside or from the rooms to be heated. Much better ventilation will be secured by inside circulation of air with a hot air furnace than when heating with hot water or steam, as circulation of air is ventilation to a certain extent. A ventilating flue may be used with a hot air system and inside circulation to good advantage.

Mention of a good plan for a ventilating flue may be found on page 24 of our 1904 catalogue, which will be sent on application to The Lennox Furnace Co., Marshalltown, Io.; W. J. Heald, Manager.

THE PROPER EXECUTION OF INTERIOR WOOD FINISH.

It is a well known fact among architects that the proper execution of interior hardwood finish is one of the most important factors in connection with building, by reason of the fact that it is one of the items used in the construction which is part of the decoration of a home, and unless properly executed, is always a source of regret to the owner. Enough care and consideration in the correct method of handling of woods, as well as the workmanship on same, is very seldom given by factories who produce this work, and it is quite often the case that the question of a few dollars carries with it more weight than the consideration of the results which are desired. Architects owe it to their clients to secure for them the very best results obtainable at a reasonable cost, and in this connection the quality of work should be, if anything, more fully considered than the price. The proper execution of interior finish should be given very careful consideration, and the work should always be entrusted to concerns whose ability to properly furnish it, and whose reputation for first class work is unquestionable.

In line with this statement, we wish to call attention to the Farley & Loetscher Manufacturing Company of Dubuque, Iowa, which is probably the largest concern of this kind in the country, and whose reputation, being of the very highest, has stood the test of years. Their operations are on the very largest scale, and one which finds a market for its output throughout the country. This company owes its prominence not only to the extent of its operations, but fully as much to its wide reputation for beauty of material and superb workmanship embodied in its hardwood interior finish, which may be seen in many of the most costly and elegant, private and public buildings in the country.

It is a pleasure to this journal to be able to give this information, which will be a great interest to every one employing this class of material.

A CREDIT TO THE NORTHWEST.

While the industrial growth of the Northwest has been almost phenomenal, it is not everyone that is familiar with the full development of this rapid growth. There are many concerns doing business in the Twin Cities, which would be a credit to the largest cities of the world, and in the tent, awning and canvas goods line, there are but one or two concerns in the entire country that excel in magnitude that of H. G. Neal, who maintains factories in both Minneapolis and St. Paul.

All orders for tents, awnings, canvas covers, etc., whether large or small, receive the most careful and painstaking consideration from Mr. Neal. By virtue of his reputation as being the largest manufacturer and dealer in his line in this section, as well as for his reputation for honorable and upright business methods, customers may feel assured of honorable and just treatment.

He has recently completed the awning work for the great Plymouth Clothing house, and the New England store of Minneapolis, besides he has secured the contract, and has nearly completed the large tent for Minnesota State Fair Association, including seats, etc. This tent will have a seating capacity for fully 5,000 people. He also furnished the tent and outfit for the Operatic Co., which played at Lake Harriet last season, and is going to supply the New Light Opera Co., that is to be located at Nicollet avenue and Thirteenth street, for the present season with a complete equipment of canvas seats, etc.

Mr. Neal makes a specialty of awnings for private dwellings, and architects who will allow him the privilege of making estimates on this kind of work for the better class of residences, or, if they will kindly suggest to their clients to call at Mr. Neal's establishment at St. Paul or Minneapolis, will not only confer a favor to Mr. Neal, but also to the clients, as all that one can do, will be done to insure perfect satisfaction to both architect and client. Mr. Neal takes special pride in referring anyone that is interested, to many of the most handsome dwellings in the Northwest, for which he has furnished the awnings.

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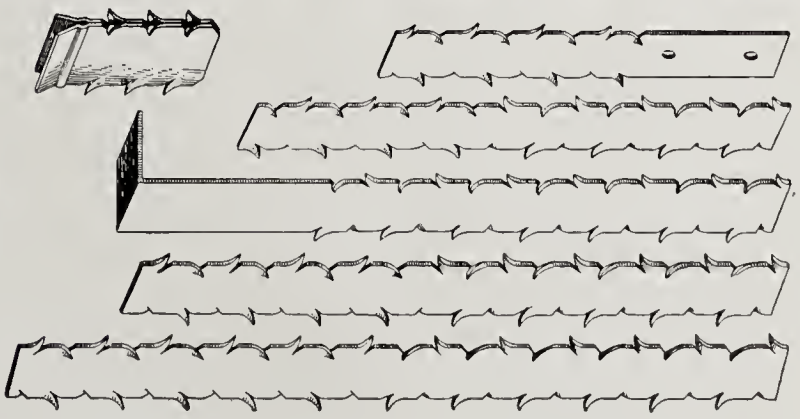

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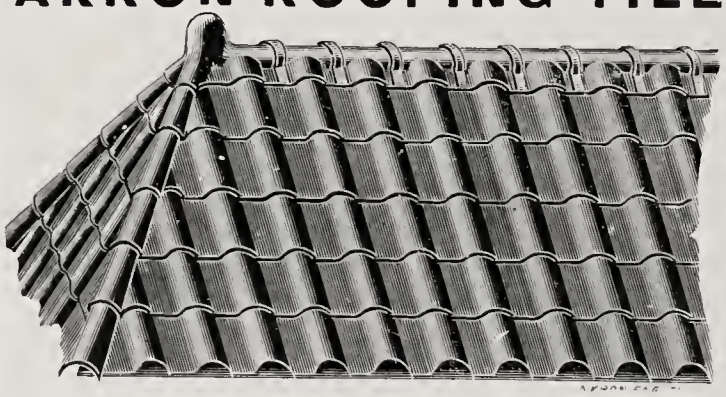

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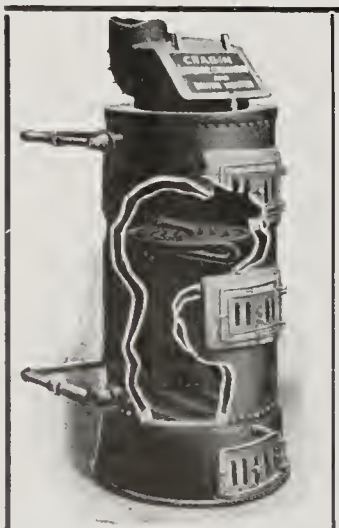

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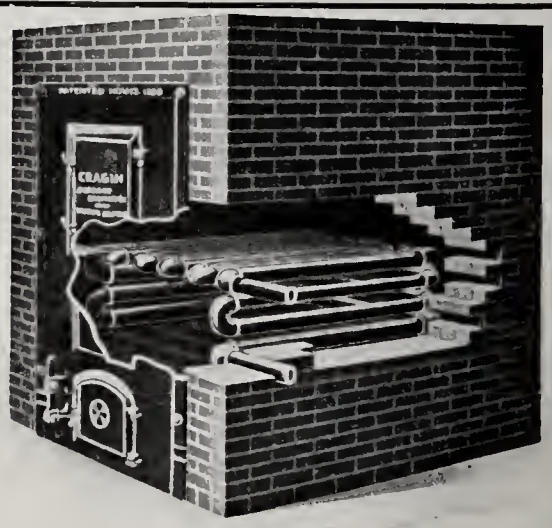

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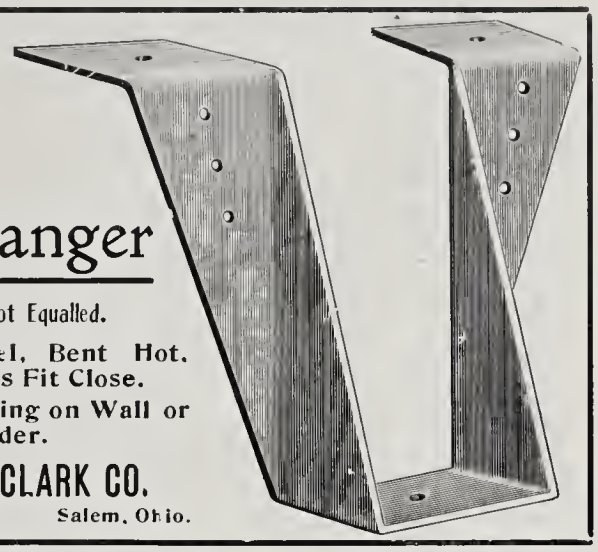

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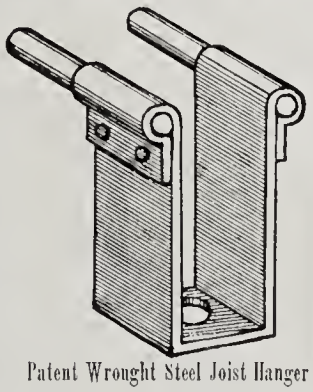

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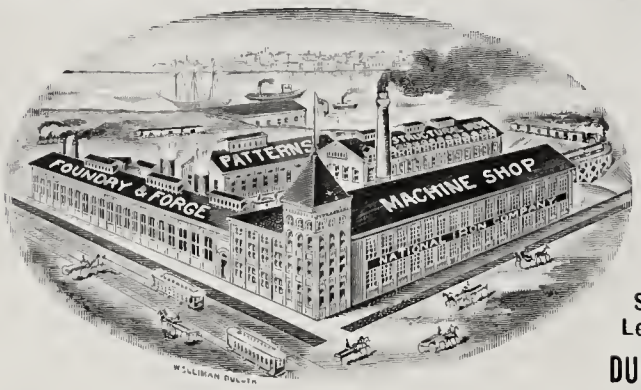

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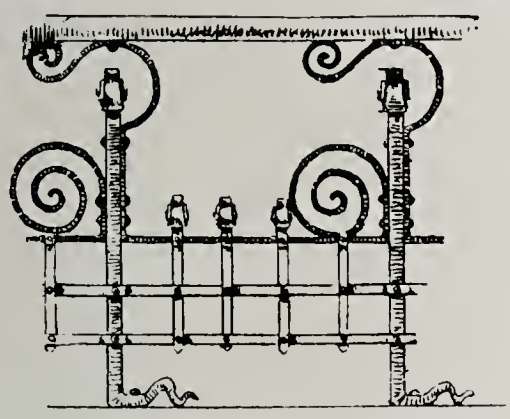

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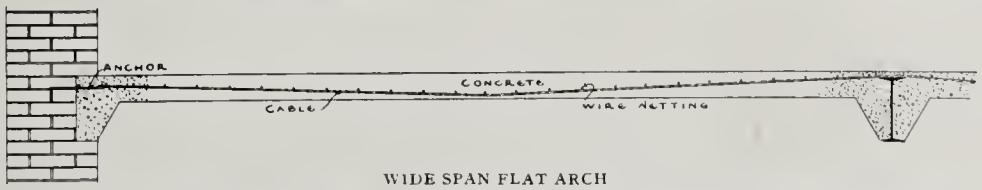

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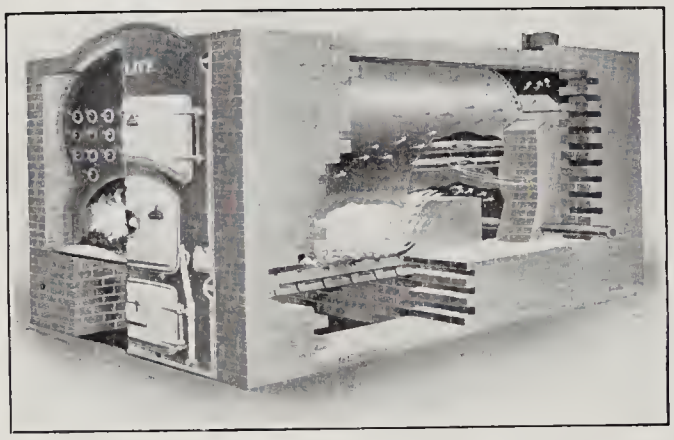

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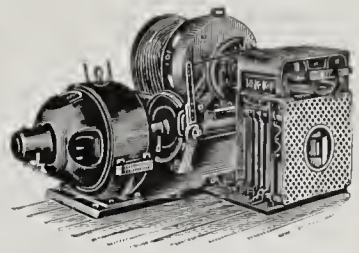

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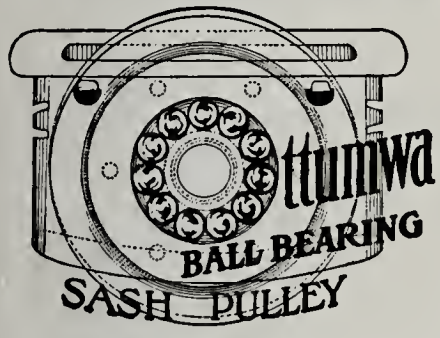

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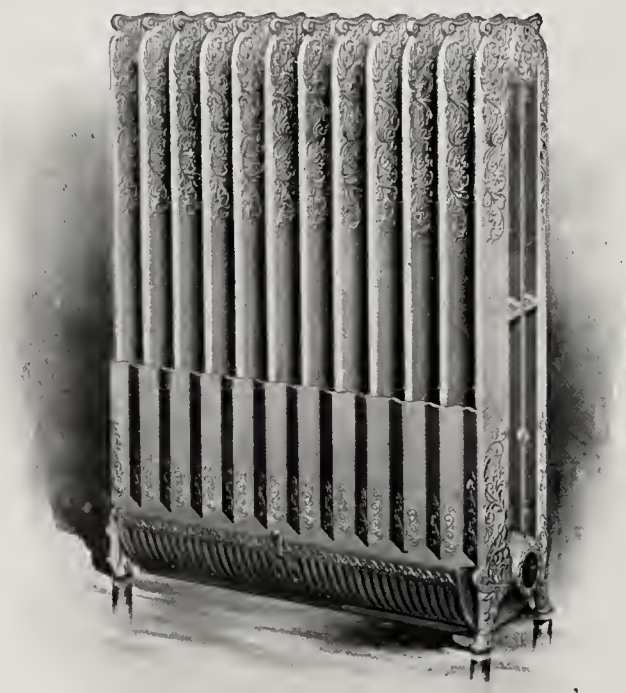

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THE Canadian authorities who are so much exercised over the employment of American civil engineers on Canadian railroads, might get some more advertising of the same kind by making inquiry into the practice of employing American architectural talent.

TORONTO, according to the "Canadian Architect," had felt safe with water pipes buried three and one half feet in the ground until the experiences of the last "exceptional" winter, when the frost in some cases reached pipes buried five feet. The water pressure at the great Toronto fire is said to have been deficient, but it is not charged that the condition of the mains is the cause. In the Twin Cities, it is thought best to insure against breaks from frost by burying water pipes about nine feet, but in Minneapolis the past winter the city authorities were greatly puzzled to account for the unusual consumption of water. The mains crossing the river were accused of leaking, the pumps of "slipping" and what not. The plumbing fraternity, however, accounted for it by the fear on the part of house owners, that their supplies would be cut off by frost unless the water was kept running in them. As water meters are by no means universal, there is ground for such a suspicion.

BARON KANEKO, an L. L. D. of the Harvard Law School, member of the House of Peers of the Japanese Parliament, now visiting this country to study economic conditions and to report to his government certain features of the St. Louis exhibits, is firm in the belief that his people are thoroughly awake—on the war issue at any rate. He explains that his nation is not callow, and that his people are not restricted to imitation, that they are using guns of their own invention and that Dr. Shimose's smokeless powder which they use for bursting charges in shells, is "five times more potent than . . . the redoubtable lyddite." Something very like confirmation of this claim comes from some of our naval officers who saw its effects on one of the Russian ships captured at Chemulpo.

BILL boards seem likely to prevail until public sentiment is worked up to the point where they are looked upon as much more of an offense than now. This department has had occasion to comment on at least one instance where the courts had assumed a jurisdiction quite unusual, and had sustained an ordinance requiring acquiescence on the part of the neighbors before bill boards could be put up on private property. So far as we know, the legality of this ordinance was never tested in the highest courts, because the bill posters interested, found no difficulty in getting neighborhood signatures to petitions for permits to put up their boards. At any rate, it is to be doubted if higher courts would sustain any ordinance prohibiting the erection of bill boards on private property if so substantially done as to remove the idea of a menace to public safety. We are not advised that any attempt to tax these displays has ever been taken up for final decision in the courts, but if such a taxing power were shown to be within the legislative province, the nuisance could be readily brought under control. It is possible that by a stretch of the rulings that have put a stop to the defacing of natural scenery by advertisements, the nuisance in its present phase may yet be reached. Meanwhile the St. Paul Civic League is doing the right thing in trying to arouse public opinion by putting up some model bill boards of a decent and orderly sort, and the Minnesota Art Commission are helping along the good work as they can.

THE metric system is reported to be too much for the Russian military system. It seems that the guns at Vladivostock did not reply to the first attack of the Jap fleet, because the ammunition was too plump by several millimetres.

THE press item given below may indicate nothing more than a flirtation, yet in certain lights it has a serious leap year look, too. Happily it comes a good deal short of an announcement:

SEEKING ALLIANCE WITH HARVARD.

The following announcement was made last week at Boston from the office of Henry S. Pritchett, president of the Massachusetts Institute of Technology: "The following resolution, passed by the corporation of the Massachusetts Institute of Technology, has just been transmitted by the executive committee of the institute to the corporation of Harvard University:—

"Voted, That the executive committee be requested to ascertain whether any arrangement can be made with Harvard University for a combination of effort in technical education such as will substantially preserve the organization, control traditions and the name of the Massachusetts Institute of Technology."

This action of the corporation of the institute was communicated to the alumni and the faculty immediately upon the passage of the resolution.

If the union can be brought about so as to effect a real "combination of effort in technical education" that can be maintained, all will be well, but in the light of experience such a combination will certainly be exceptional. "The Tech" itself, is not wholly free from certain conservative influences which stand in the way of, rather than aid technical education—a leaning toward a supposed culture not always free from scholasticism which may more readily be overdone than the teaching force may be disposed to recognize. The Institute is doing good things, but many of these good things come from outside initiative. Naturally a larger percentage of its students are men with an ambition to do things, than are to be found in the average student body at universites. These ambitions are hindered, rather than helped by the conservatism referred to. How the union of a Technical school with a university can fail to strengthen this conservative tendency, does not appear.

SOUTHERN Yellow Pine is having its merits made known to those interested in its use by means of a valuable booklet issued by the Southern Lumber Manufacturers' Association. The booklet is evidently being used as a circular and in addition to containing rules for grading and the standard sections of boarding, has tables of strength of the principal varieties used, and much other technical information of value. Here will be found the conclusions reached from testing timber from trees that had been boxed for turpentine, in comparison with other timber that had not been so "boxed" or "bled." The relative strength of Cuban, Long Leaf, Loblolly and Short Leaf pines are given, showing that they stand in the order named, and seem to vary about as the average specific weight of the different kinds. Just how any one is to tell which is which by the time the varieties have reached new markets, a thousand miles from their native home, it does not state. A table of average weights per cubic foot, at a certain standard of dryness, might have been some guide to strength if not to variety, taken in connection with the table of strengths of different varieties. This table credits the four varieties with transverse strength relatively at 100, 91, 84 and 77, in the order named, and the relative weight as 100, 94, 82 and 77.

The benefits of seasoning as stated in the booklet, surprise readers who have not had their attention called to the subject. Ordinary yard timber is found to be 50 per cent stronger than green timber and the strength of this yard timber is said to be capable of a 30 per cent increase by kiln drying. Both these statements will appear rash to people familiar with more northern varieties of pine and other woods, and in fact the tables given in the booklet hardly bear out the deductions. Kiln drying, unless done with care, has not only been held to detract from the strength of lumber, but its effect upon the weathering qualities—as of shingles so dried, to save freight in long distance shipments—has been questioned.

A feature of the booklet, little short of a curiosity in these days, is the flitch beam with methods of calculating examples and tables of strength. An example given requires dimensions of iron plate and timbers necessary to form a flitch beam carrying 80,000 pounds with a clear span of 18 feet, and the answer gives a beam 18 inches deep with a plate weighing with bolts, more than 80 pounds per foot. But as a 20-inch I-beam alone, weighing 80 pounds per foot is considerably stronger than the flitch beam, which would require 22½ feet board measure of southern pine per foot in addition to the plate, the resuscitation of the flitch beam will be attended with difficulties. The booklet also fails to point out, or in any way to anticipate the difficulties that arise from the shrinkage that takes place in the timber bolted to the sides of the flitch plate. As manufacturing tables are coming more and more to be used, such oversights are to be deplored.

IT is claimed for union painters that they have secured advances in wages per hour of fifty per cent within the past five years, with generally a reduction of twenty per cent in hours. This would mean a smaller real advance in earnings than cost of living, unless it brought with it less lost time, which is probably the case. It would increase the labor cost to owners more than fifty per cent if the manner of finishing remained the same, but much inside finishing is now done with but a fraction of the labor formerly required. Less wood finish is being used, relatively, than formerly, which would have a further tendency to cut into the employment of painters. Paints and varnishes have not risen in price to any great extent during the period; in fact, there have been at least two times of very low priced linseed oil during the time, so that owners have not felt this increased labor cost so keenly as if materials had gone up as in some other departments of building.

THE Bricklayers of Buffalo are carrying the sympathetic strike pretty well to the limit if press reports do not misrepresent them. The stonemasons being on strike for higher wages, the bricklayers have decided to lay no bricks on concrete foundations. This action has led to something very much like retaliation on the part of contractors who have declared a lockout of all masons, tenders and teamsters affiliated with them. All this indicates that the interests involved are feeling more "cocky" than is, very fortunately, the case in the building trades generally throughout the country. There are several potent reasons why peace will prevail largely in labor circles during the season, the foremost of which is the empty domestic bin to which we have called attention before. Although wages in organized callings have been high for the past two or three years, all indications point to an increased cost of living to more than offset increase in wages during the past year, except in cases where the wage earner was enabled to offset the increased cost of living by less idle time. Such a chance was exceptional, for the last building season was short, with many rainy days, and succeeded by an unusually long winter. It is safe to count on the sentiment of the workman as desirous of employment, and the business agent will have uphill work in overcoming that sentiment, especially as the developments of last year were not such as to better the standing of business agents before either the unions or the public. Indeed, contractors are looking upon the business agent as less and less of a bugaboo, and if he pulls through the present building season without further loss of prestige, he will be in luck.

An issue is, however, awaiting stone masons, not alone in Buffalo, which will need to be met with something more than sympathy if the masons are to hold their own. The struggle between the stone wall and the concrete wall for foundations has scarcely been announced as yet, but a few samples of concrete foundation walls are being widely scattered about the country, taking the seeds of reflection with them. The concrete wall is not a new thing in building—we have listened to accounts of house walls built of concrete a half-century since, and not only of concrete, but bonded at intervals by wires—but the merits of house foundation walls, built of good cement concrete, have just begun to be thought of by the building public. For large work concrete has been displacing stone for years, a condition less serious for the trade of the stone mason than will come from competition in the materials of house walls. Stone masons will have to meet this competition badly handicapped by the record of their works, for every building superintendent knows that if he expects to get good stone walls for foundations from the average of masons, he has to almost open a trade school on every foundation job. Good materials placed in the hands of the mason are no guaranty for good walls. Beginning with the footings, if good flat stone are furnished, as commonly laid, a stone footing four feet wide will be no more efficient for support than the concrete footing of three feet. When it comes to walls, if outer walls, where earth is to be filled in against them, all stone will be laid with reference to show from the inside, so that while a fine appearance will be secured here, the side toward the earth bank will be loosely and roughly built with probably twice the joints that the inside has. One of the hardest problems for the superintendent, is securing anything like a uniform distribution of headers and stretchers in such walls. As usually built with lime mortars, the outer side of these walls is not only unfit to carry weight, but it offers hardly any barrier to the entrance of water into the wall. If the soil happens to be clay, it is next to impossible to so fill back against the wall that water will not follow down between the stone wall and clay bank for years after, and on occasions of heavy driving rains, soaking through the lime mortar joints everywhere.

Sufferers from this kind of work are in good shape to be converted by the new concrete propaganda. To excavate in these clay soils to just the size required, to use the clay bank for the outer side of a mould for concrete, to build a concrete wall of far better materials than the old mortars, to secure a wall with considerable less materials than before—a wall that is a monolith—all this looks to be very desirable, if not too costly. As to cost, good cements can be had cheaply enough. Sand will cost about so much in any case, and often the gravel pit will do the rest, but if there be no gravel pit available, stone crushers are much in evidence in parts. For light buildings, concrete walls of twenty or twenty-five per cent less cubic feet than stone walls may be used with equal safety, a factor that gives the concrete a good start at the outset in the matter of cost. The wage item also is apt to favor concrete.

SINCE Mr. Dooley's friends found the germ in Germany, the parasite in Paris, and the microbe in Ireland, everybody has been at a loss to know how anybody could have pulled through before the discovery. Here, at last, is an explanation by Life.

When the May baby and the June baby became well acquainted they exchanged confidences.

"My milk comes from a certified cow," said the May baby.

"So does mine," said the June baby.

"It is milked by a man in a white suit, with sterilized hands, through absorbent cotton, and kept at a temperature of 45 degrees."

"So is mine."

"It is brought to me in a prophylactic wagon drawn by a modified horse."

"So is mine."

"Then how in thunder do you manage to be so fat and well?"

The June baby winked slyly.

"I chew old paper, and the corners of the rugs, and anything I can find that is dirty, and in that way I manage to maintain the bacterial balance so essential to health," he said, chuckling.

The May baby laughed long and loud.

"So do I," said he.

MAIN ENTRANCE TO FRANK T. HEFFELFINGER'S RESIDENCE, MINNEAPOLIS, MINN.
Wm. Channing Whitney, Architect, Minneapolis

NORTH ENTRANCE TO FRANK T. HEFFELFINGER'S RESIDENCE, MINNEAPOLIS, MINN.
Wm. Channing Whitney, Architect, Minneapolis

THE CHAS. M. HARRINGTON RESIDENCE.

By E. B. Northrop.

The twentieth century business man, whose affairs are conducted upon large and strenuous lines, becomes so engrossed in the work of money getting that it is fair to absolve him from any genuine devotion to the purely ideal or artistic in life. He is supposed to be able to buy whatever of convenience is necessary to his physical and mental comfort, even though he should affect the highest sentiments of culture, refinement and asthetic repose. It is rarely, therefore, that the eminently successful American man of affairs develops his own and family's characteristics along artistic lines above the merely conventional. Occasionally, however, there looms up in the field of the ordinary and practical some example of lavish monied expenditure which at once assures an intelligent observer that culture and refinement have combined with wealth in its production.

Such an example is to be found in Mr. Charles M. Harrington's new home at the corner of Park avenue and Twenty-sixth street, Minneapolis, several illustrations of which appear in this issue of The Western Architect.

Situated upon a commanding terrace of ample space the quiet, dignified elegance of the exterior of this mansion of the Italian rennaisence at once attracts special attention and vouches for something better than mere modern tawdriness within. The utilitarian and the artistic are at once combined in the plain walls of light colored brick which add delightful coloring to surfaces devoid of the many incongruous shapes and shades too often affected in other styles and other materials of costly homes. The exterior, indeed, is a noteworthy example of architectural perfection in perspective, coloring, form, style and simplicity characteristic only of what is highest and best in art.

Pleased with the exterior, the visitor who enters this home of Mr. and Mrs. Harrington naturally expects to be ushered into a reception hall of large and dignified proportions, rich, subdued and unostentatious in its decorations and colorings. Here at once is indicated a culture and refinement which is even more than high art architectural construction and established individual characteristics which must have dominated the prevailing idea and plan. Not a single glaring effect in wood-work, walls, glass, decorations, lights, colorings or furnishings has been permitted to detract from an unusually sumptuous yet quiet effect. The grand stairway rises from directly opposite the main entrance to the hall and it has therefore been possible to make it a prominent art feature of the splendid apartment. In addition to the large reception facilities of the hall upon the main floor, the second-floor landing room may be considered a desirable and unique addition thereto because of its extent and its finishing and equipments.

To convey anything like an adequate idea of the character and convenience of this model and modern home—which equals the most pretentious in any of our American cities and surpasses the general average of the finest residences in cities like Cleveland, Detroit, Buffalo, Milwaukee and others of that class—would require a minute and technical description of every apartment; for each room possesses its own individuality and special adaptation to its purposes. To do that would require a volume, and therefore this description is necessarily limited to generalities.

The parlors, library, dining and tea rooms, living rooms, Mr. Harrington's personal "den," and the kitchens, pantries, etc., are all upon the first floor, but so arranged that all which pertains to the work of the household is perfectly isolated. In a general way there is a sustained plan of exceedingly elaborate and costly wood-work, wall decorations and furnishings, but there is a total absence of anything like hysterical bric-a-brac or excessive garnishment. While there has been a decided conformity in order to create a general harmony of effect, yet each room has a personality so distinct that its special uses are at once apparent. This is somewhat illustrated by the evident fact that every article of furniture has been made from special designs appropriate to its uses and its environment; and in the living rooms and individual apartments it is also evident that personal tastes have suggested the style and art of the belongings. It is perhaps permissable to state that in this particular few homes in any country can give better evidence of artistic perception and knowledge than is displayed by the quality and perfection of the various accessories to convenience and comfort that are here observable.

Again, there is evidence of not only careful study, but of special tact on the part (we presume) of Mrs. Harrington in the the central hall and adjoining apartment arrangements which affords unusually commodious and continuous room space for guests upon the occasions of large social functions; the floor plans in this regard could not possibly be improved upon.

In so complete a structure it was, of course, to be expected that there would be no exterior or room evidences of heating appliances; everything being confined within the walls—therefore more effective both as regards heating and ventilation.

The basement may be said to be devoted by Mr. Harrington to more masculine pleasures; for there is the superb billiard room and card rooms and accessories that are supposed to delight and entertain when not brought into competition with the drawing room or the ball room.

The second floor is a marvel of luxuriousness, and there are the private apartments of the family. A unique feature is in the fact that every apartment connects with one adjoining, and the entire circuit of the great house may thereby be made without entering a hall passageway, as may been seen by study of the floor plans as they appear in this connection. Here, as all the furniture and fittings have been made from special and original designs, is again evinced individual characteristics; and exquisite and cultivated taste is everywheres exhibited. All of the apartments are very large and, of course, supplied with every convenience and luxury known to these luxurious times. Miss Harrington's wardrobe apartment with its

RESIDENCE OF MR. JACOB DITTENHOEFER, SUMMIT AVENUE, ST. PAUL, MINN.
Cass Gilbert, Architect, New York and St. Paul.

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Sproat, Rolph & Chrysler, Architects, Winnipeg

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CARRIAGE ENTRANCE—CHARLES M. HARRINGTON'S RESIDENCE, MINNEAPOLIS, MINN.
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HALL IN CHARLES M. HARRINGTON'S RESIDENCE, MINNEAPOLIS, MINN.
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PARK AVENUE, OR FRONT VIEW OF FRANK T. HEFFELFINGER'S RESIDENCE, MINNEAPOLIS, MINN.
Wm. Channing Whitney, Architect, Minneapolis

C. F. Haglin, Contractor

Supplement to
The Western Architect.

June, 1904

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NORTH VIEW—FRANK T. HEFFELFINGER'S RESIDENCE, MINNEAPOLIS, MINN.
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HALL-SECOND STORY LANDING-CHARLES M. HARRINGTON'S RESIDENCE, MINNEAPOLIS, MINN.
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DRAWING ROOM IN CHARLES M. HARRINGTON'S RESIDENCE, MINNEAPOLIS, MINN.

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INTERIOR OF C. M. HARRINGTON'S STABLE, MINNEAPOLIS, MINN.
Kees & Colburn, Architects, Minneapolis
Equipped with the American Sanitary Stall System

COACH ROOM IN STABLE OF C. M. HARRINGTON, MINNEAPOLIS, MINN.
Kees & Colburn, Architects, Minneapolis
Stable Provided with the American Sanitary Stall System

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cabinets for hats, laces, dresses, and general feminine belongings, must certainly be the admiration of her girl friends who are permitted to examine it.

The third or top floor of the mansion is given up entirely to the ball room, its stage and the adjoining retiring rooms. The ball room is fifty feet square and in some important features is probably unsurpassed by that in any private home in the country. Here, again, rare appreciation of the fitness of things is observable; for the simplicity of the decorations and colorings have been adapted to the important end that they shall not detract from nor make too conspicuous any gown effects that may appear upon the ball room floors. The walls are in soft gray with decorations that are mere suggestions of splashes of old rose and the finishings are in a light cream color. The upholstering of the seats corresponds with the wall colorings, and the total result is reposeful enough in itself to afford a degree of rest to the dancers. A comfortable feature of the seating arrangements consists of a half-step extending the entire length of the seats and forming a foot-rest which protects the draperies of those who are seated from contact with the dancers. The ball room is really an auditorium suitable to large dramatic or musical functions as well as dancing; and in size, decorations, stage and side-room accessories, it is one of the most notable private auditoriums in the country.

As a whole, Mr. Harrington's mansion is a composite art work upon which the careful thought and intelligence of himself and family has been concentrated for the purpose of creating an ideal home, directed and assisted by the technical skill, artistic temperament and thorough architectural and constructive knowledge of Messrs. Kees & Colburn, of Minneapolis, and the personal attention of Mr. John S. Bradstreet, whose name is everywhere recognized among the first in the profession of decorative art.

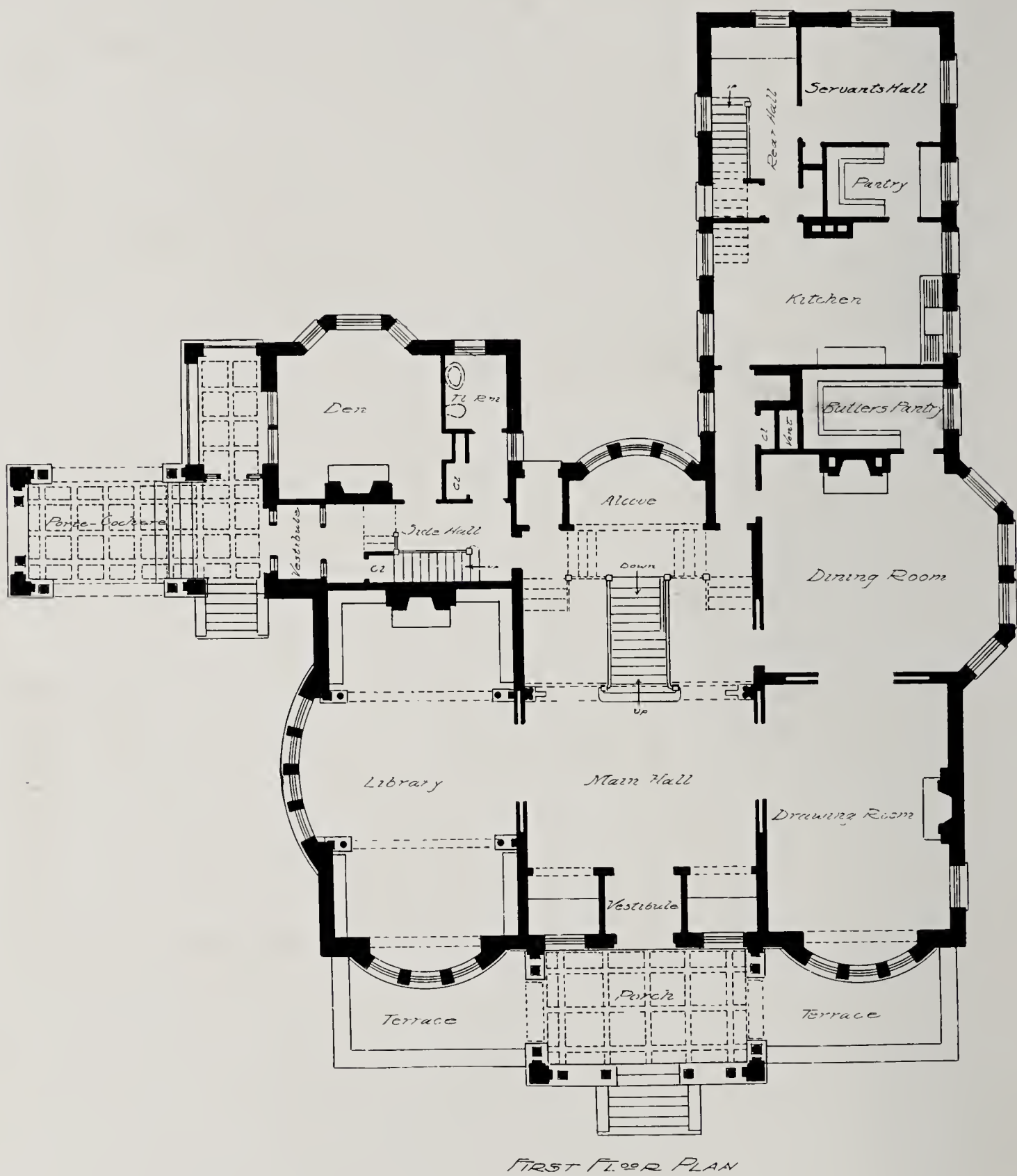
It is impossible, in the limits of this article, to detail even the most important constructive features; but the heating and ventilation of the building constitutes a matter of public importance. The boilers and all the machinery connected with the heating and ventilation are located in the basement of the stables, from which a tunnel-way for all piping connects with the residence. The system is of such perfection that any desired temperature may be produced and maintained in any part of the mansion wholly by wall radiation; and there is not a square inch of floor space but is constantly having its air changed and purified. Air pollution is simply impossible in any part of the building. An object lesson has been provided which every architect should at least familiarize himself with.

Mention should also be made of several innovations in the kitchens and pantries which add greatly to their conveniences, but they can only be appreciated by being seen.

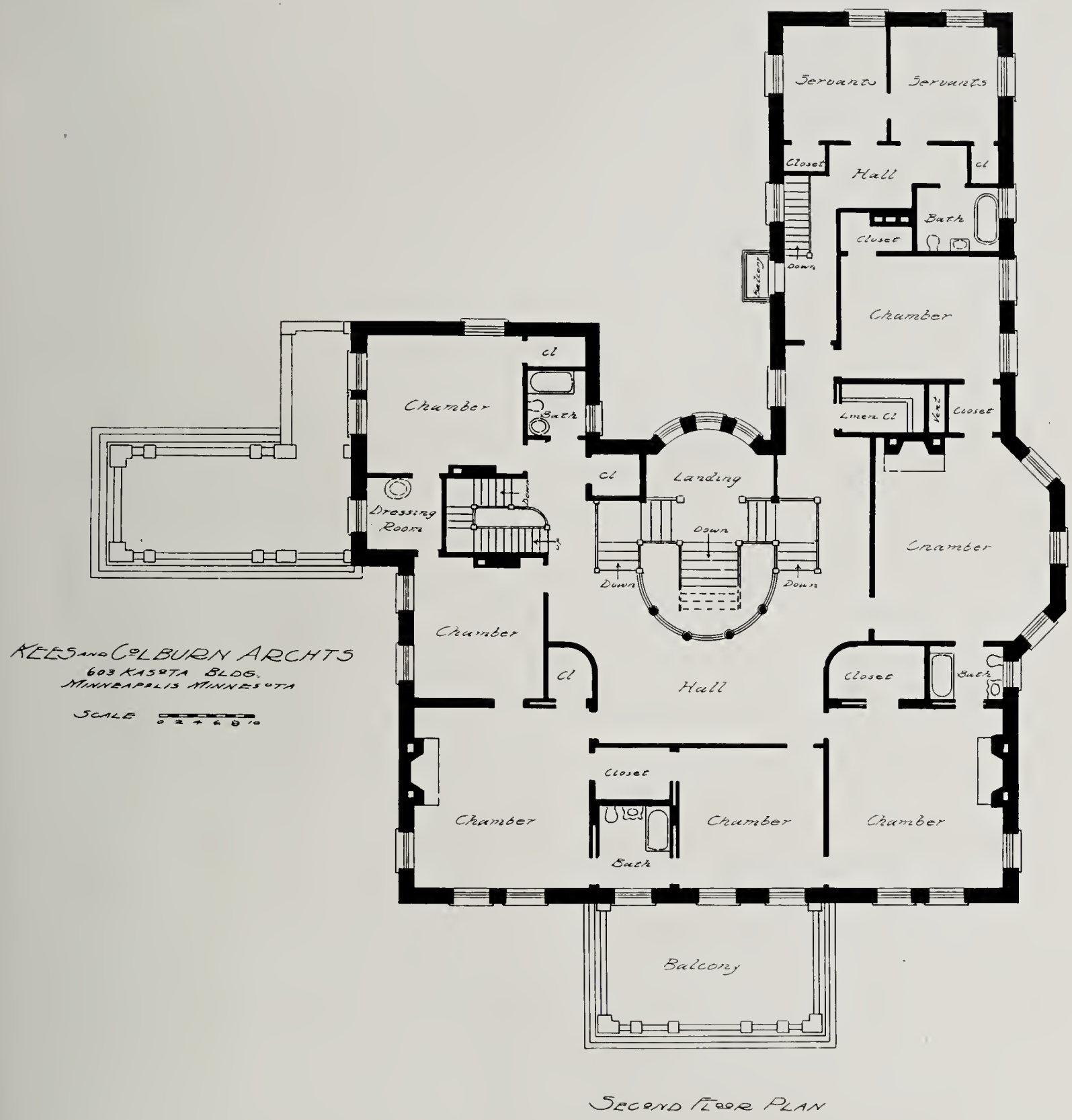
It is quite a matter of course that the bath rooms and lavatories should be fitted and constructed in the most perfect manner known to convenience, attractiveness and sanitation. They are the perfection of modern appliances and materials.

THE STABLES

Relatively considered, the average man and trained architect and specialist would probably consider Mr. Harrington's stables even a more complete utilitarian and scientific triumph than is the residence. It is undoubtedly the most perfect building for its purposes that has yet been constructed either in this country or in Europe; for is possesses features of sanitation that as yet are not in general use and a number of special features which are unique and unsurpassed. Coupled with the use of materials that are the best attainable this palatial stable, although not yet finished in complete detail, is attracting the attenion of owners of valuable horses, and of architects and builders from all over the country. So perfect is the heating, ventilating and flushing, which is that of the recently perfected American Sanitary Stall system, that not a trace of antimonial odors are possible anywhere in the building, not even in the stalls. Indeed, there are comparatively few residences in which the problems in sanitation have been so perfectly solved. The floor air is constantly renewed under pressure so that there is no opportunity for fouling or contamination, and stall drainage is immediate and complete. The flushing system is as perfect as enclosed conduits and pipes can make it, and may be continuous or periodical at will. Perhaps the reader will best appreciate the extraordinary care that has been taken to maintain cleanliness and sanitary conditions by knowledge of the fact that the feeding of hay—ordinarily attended by so much deliterious dust—is accomplished without a particle of dust accompanying or remaining with the material used, be it timothy for food or straw for bedding; the result of air blast cleansing before the material goes into the stall. Equal facilities for keeping dust and dirt out of every apartment of the stable are noticeable. The ceiling of the carriage room is in process of finishing and will be appropriately frescoed. There is room for six vehicles each side of the runway, which is covered with heavy matting. The carriage floors each side of the run-way affords opportunity for pleasing decoration, which is utilized by the foreman in charge by a light covering of snow-white sand upon which he has stenciled conventional designs in brilliant colors. For the week of the Fourth of July the designs will consist of "Old Glory" and other evidences of patriotic citizenship. Architecturally the stable, of course, compares with the mansion, and its living conveniences for the stable men in the second story are in keeping with every other detail of expenditure about the place. By the use of the basement of the stable for the heating and ventilating appliances, the fuel bins, etc., the house is free from any possible annoyance of noise or dirt, and affords so much more room in the basement in the main building. The harness, dressing, bath, working and tool rooms of the stable are each large and equipped with every facility for their purpose. There has been no effort at profuse ornamentation and there has been no limit to expenditure which was necessary to provide the best materials known to constructive work that might in any way add to the features which make this modern home for the horse perfect.



FIRST FLOOR PLAN OF C M. HARRINGTON'S RESIDENCE, MINNEAPOLIS, MINN.
Kees & Colburn, Architects, Minneapolis



SECOND FLOOR PLAN OF C. M. HARRINGTON'S RESIDENCE, MINNEAPOLIS, MINN.
Kees & Colburn, Architects, Minneapolis

*A MANUFACTURER'S TALK TO ARCHITECTS

By M. D. Gates,
Of the American Terra-Cotta and Ceramic Company.

I have always noted in regard to architects and builders, that the feeling seemed to be prevalent that they can meet only in architects' offices, and that outside of these offices they must absolutely decline to know each other. The extent of that feeling has been surprising to me.

It seems to me that a man who is in your profession, planning one building after another—a home, a sky-scraper—ought to reach out and encompass in his work all the industries included in the completed building, and that his relations cannot be too close with the men who carry out his plans, with the men who put up the work. He ought to bring to his office all the details of these various manufactures, and, necessarily, he must reach out after the individual ideas of the people who translate into stone, mortar, brick, and wood the conception he has in mind.

I remember at an architectural meeting in Chicago—I was at that time president of the Builders' Club,—one of the things I looked forward to was that the Builders' Club might extend some courtesies to the visiting architects. There was a very strange feeling—that they could not come to the Builders' Club, though many of them did finally accept the invitation. After the meeting I was talking to one of the gentlemen from Philadelphia, and he said if he were to go back and tell them at home of the relation between the Builders' Club and the Architects' Club in Chicago, they would not believe it.

If you draw a plan the contractor is the man who must translate your conception into reality. He must reach out to Pittsburg for the steel, to various quarries for the stone and marble, to a factory for the terra cotta, etc.; and he has to concentrate these—bring the materials together at the proper time and place.

We know in the construction of the first sky-scraper, the work went along merrily until there was a confusion of tongues. We start with a confusion of tongues, and the contractor goes ahead and uses all the spoken languages he can use, and then resorts to sign-language; but he puts up the building.

It is generally difficult to get an architect to do more than inspect our work; but I find the architect after he goes through the factory is able to handle this line in a better manner than when it is shown up in the office alone. If a man goes to see the building, if he has made a mistake in any particular portion of the work, it is a very remote contingency that that will come to him again. This mistake was the one you didn't catch. I get up some favorite construction, and I find our old Scotchman up on the building will show a very good reason why it will not work, and that is in the line of progress.

Our Chicago Club is in very pleasant quarters, and in better condition than it has ever been, and we will be delighted to see you, gentlemen, when down there. We have pleasant club-rooms, running generally in good shape. We have a traveling scholarship, but every man who goes abroad comes back to New York and locates there.

Many years ago I started in the terra cotta business; there was no literature to it—there was no information to be had. The potter was the most secretive individual possible. If a man had a receipt for a glaze, he shut up his factory, and the general idea was the poetic idea—

> Now let the tired horse go round,
> And let the yellow clay be ground.

Now, there has been progress in your line, there has been progress in many lines, but very possibly there has been more progress in clay-working than has attracted your attention. The Association has improved; it has held annual meetings. There was no delegate system. Each man paid his own expenses, and attended if he wished. It has gathered together from all quarters of the United States men thoroughly in earnest in their business, men who talked over in the papers, in the convention matters that have saved untold money and sweat and agony in the mistakes they have avoided. One man would try out a theory for a general benefit. It has engendered a very generous feeling.

I joined the National Brick Manufacturers' Association because there wasn't anything else for me to join. I couldn't trust the clay men. Being in another line and thoroughly in earnest, I found very enjoyable companionship with the brick manufacturers.

From these two organizations has grown up a literature simply wonderful. Out of it grew the first school, which was established in Columbus, Ohio, in the Ohio State University, being in the Engineering Department. I have had two boys finished in that school, and have two more going there this fall, and I have two or three of the graduates at the factory. I find scientific knowledge is most profitable and interesting, applied to glazes, to pottery, to sanitary ware, and in all the varied lines—there is no limit to them. Very recently I tried an experiment with an artist in Chicago who paints characteristic lines of pictures. He came up and painted three landscapes in clay colors on clay in clay. The three came from the kiln in remarkably good shape. It is a decided innovation. Bright yellows for sunset, browns, blacks, and dark greens for the trees. It worked out very nicely.

The terra-cotta business is a business of a good deal of detail. It is a business, unfortunately, which generally is located far enough away, so that you don't go to see it, unless you have to in that line of business.

When we receive your plans, they go into what we call our drafting room, where a new set of drawings is made, on which we set out every piece of the work that goes into a building. The building or job is given a number, and that particular number will appear just

*A talk by Mr. M. D. Gates, before the Twin City Architectural Club, in Minneapolis, Friday Evening, May 20th.

on that building, and it will appear on every piece of work that goes into that building; so when you go into a building, you will find a number that is what we call a "job" number. We generally begin at the bottom. It used to be the prevailing idea that we began at the top, and made the first work required last. In fact, we received a letter from one party, saying: "Kindly remember that, owing to the rarified condition of the atmosphere in Sioux City, we begin at the bottom."

As I have said, we make drawings showing every piece of the work, that may be lettered 1401, or whatever is the job number, each number course will be given a letetr, as 1401-A, this will identify it as being a piece that comes in that particular course—that will be the piece that will be repeated throughout that course, then we have A-2, A-3, A-4. Mitred pieces are cut in the cutting department; they are cut, moulded, and welded together, and marked each one for its place. From the drafting-room these drawings go in with the full-sized details. In any case, we draw them over on a shrinkage rule—they shrink in drying, so that we have to use a definite mixture in our clays of which we know the shrinkage, absolutely. We measure off 1 1-16 for every inch, and thus we measure off every inch of the profile you send us. We make it over, and makes it just that much bigger. That goes to the plaster-shop, and the running courses are run with a templet on the marble table. We make them in plaster that way, because the clay is liable to change. Then a box, virtually, is made on the four sides. Then this is tipped over and taken apart, and the middle taken out; the hole left goes to the fitting room. More or less work is made up in what we call originals, and all this ware is made up about an inch in thickness, with bridging to stiffen it in the back. It is pounded with a piece of cloth or a piece of clay until the clay is driven into all the intersections. After the bridging is put in, it goes to the finishers, and is all gone over by hand—that is, the whole surface is gone over. We have to fashion the back to fit the iron or wood; a great deal of it hangs on iron, and the back of it has to be cut out to fit to its place. One very vital thing is that we want to thoroughly take into account our material. There has been a tendency to economize in all these lines. We want to get the best and biggest buildings, naturally, that we can for the money. We jump to the conclusion that clay will necessarily withstand fire, and a lesser quantity may be used. We have all learned a lesson from the Pittsburg fire. I am satisfied we want to quit fighting the cement men, and quit finding fault with each other, and each study his particular material, and make it as good as he can. It is a bad thing to own up deficiencies. I confess we have been studying for weather-resisting qualities, for color, for strength, for shrinkage.

If you were putting up a kiln or fire-box, you would get fire-brick, brick calculated for that particular purpose. If it is a furnace that is going to be heated all the time, you use one kind of brick; if it is to be heated and cooled, you use a different kind. There are fire-clays that stand continuous heat, which fly to pieces if heated and cooled. We have all got to pay attention to our work, with that particular reference, and this fire has called it to our attention. The reports are—we did not have any of our ware in Baltimore—that it stood it, probably, better than any other material. Now, in this cheapening process it often comes to the point, where in the lintel or in the flange of an I-beam—(the idea was too much thinness of material when fastened to iron or other substance, on account of the shaping to fit the iron or other material, as I understood it)—because the material was fire-proof, we all jumped to the conclusion that an inch of it would do, whereas when it comes to the test in case of fire, because of warpage that is exerted at this point, with the tendency to leave your I-beam or supporting work exposed, you have got to use a sufficient amount for your protection. Architects generally are coming to that conclusion from fire experience.

After the ware is pressed and finished it goes into the drying-room. There are very many questions that come in there. We have to be very careful with the mixtures, and we hold to our own results.

Terra cotta is a mixture of different raw and different burned clays, whose chemistry, after being once ascertained, must be adhered to very closely. If the mixture is not absolutely right, when your work goes in on the coils it begins to crack. After this it goes to the slipping-room, and is given a thin coat of very fine clay, which forms a sort of skin, giving it a uniform color that would be impossible to get on the body of the old terra cotta and ground brick, making the rough preparation, which forms the bone of the material. As a skeleton holds up the body, so this material holds it up in the drying, and holds it up in the burning. Having covered this with slip or glaze, it is taken to the kiln, which is virtually a great big oven. We cannot put the flame through our ware. We have ovens 16 feet in diameter, with 8, 10 or 12 fire-boxes. From the top down through is a central stack from which radiates many chimneys, in order to heat it all evenly. Fire-tools are placed every two feet. Fire-clay slabs are so placed that a floor is built approximately every two feet through the kiln, each piece has only its own weight to bear. The door is bricked up with fire-brick, and again outside, letting the flame pass between. We burned for a great many years with oil, which is a very fine fuel; but Mr. Rockefeller got to making more donations to the Chicago University, and got oil up where we couldn't reach it, and we had to go back to coal. The burning takes from 80 to 100 hours, and is about the melting point of gold—i. e., 1,100 degrees centigrade. Every part of the kiln must be equally heated. The colors are brought out by the fire. A clay that will burn red may be a slate color in the bed, and burn bright red in the fire, so

that every part of the kiln must have the same heat to obtain, which is a very intricate proposition—that is, to raise the kiln to a high heat and have that result. Formerly the only guide was to look in at the fire. The potter classifies heat into gradations finer than the silk-ribbon colors at a lady's counter.

Considerable of my time has been devoted to making enemies of the people coming in with samples. Every one of them knows he has got a bank; he doesn't realize it is a clay bank, he thinks it is a national bank, at least. For instance, a man brought in a sample, and said it had been fired at a high temperature. I said: "It has been nicely concealed; it doesn't indicate it." Then he said it was burned in a china-kiln, which takes the lowest heat of any.

Clay does not lose its plasticity until it loses a certain amount of water—until it passes the cherry-red point. To test this heat, outside of color, we make try-pieces an inch thick and about four or five inches long, which are laid in try-holes, one row above and one below. After you get above bright-red heat you can see what is in the kiln. After it gets heated up you can reach in a steel rod, and bring it out and study it, judging from the effects on that what stage of the burning has been arrived at.

A good many years ago a man by the name of Saeger invented what is known as Saeger's cones. They are made of different materials, about three inches high, in pyramidal form, and tapering up. These are given definite numbers. They are put in the try-holes so that you can see all three of them. Then a man can burn until he begins to see one of them bending over. By the time that runs over, the second one will begin to bend, etc. He may burn his kiln at different degrees of heat, as he may require; but when a man says he burned the material at Saeger 7, you understand at what temperature it has been burned.

As denoting the change in the general tone of the potter's ideas, I will state in regard to the American Ceramic Society. These fellows had this work, and were perfectly familiar with it, and realizing its value it was apportioned out among them and translated—a great deal of hard work to do. Both volumes are now out in reach of the English-speaking people of the world.

A great building is like a composite photograph, supposed to give some of the characteristics of the whole class or group as boiled down into one. Well, a building is a composite photograph. It has the most of the architect, because his is the brain that conceives the whole proposition; but there is an individuality, from the mortar-mixer up, that goes into the building. I think without individuality and without enthusiasm you never get good work. I believe that every enthusiastic worker is putting a little section of his life into a building, and there is that composite proposition, a little section of the life of every worker just as there is in the composite photograph; but I know, of course, the master mind is the one that has conceived the general outline of the building. It doesn't do for me to think that it is better to put this or that here. I haven't the grasp of the whole situation as you have, but the man who thinks he can alter a piece of detail is going to get the architect into trouble because he does not grasp the whole proposition.

It is a highly dangerous thing to run a man in with a hobby to speak to a young and growing organization. The only good definition I ever heard of the word "hobby" was, naturally, given by a crazy man. A man going through one of our Eastern institutions, saw a man sitting astride and apparently driving. He stopped and said to the man, to humor him: "That is a fine horse you have." The man looked at him with scorn and said: "It isn't a horse; it's a hobby." The visitor asked: "What is the difference?" He replied: "Anybody ought to know that; you can get off from a horse."

I know my weakness, and I appreciate the chance to talk my material. When my friend Hewson telephoned me day before yesterday, I was celebrating one of the sickest bilious headaches it has been my lot to have; but when he informed me what he wanted, I got right down close to the instrument and yelled: "Yes, yes; I'll come;" and I am mighty glad to be here with you. You are the men I would like to meet. Generally we have to go into an architect's office on all fours with great humility, and seldom get back to where you gentlemen are.

I am not going to say that you have built two great cities; but that you are going to build a great many good buildings; that the men right here—and I am surprised so many came out to hear me—are going to achieve things in the building line. I think we builders are getting educated; we believe more in our business. You are going to try to build bigger buildings, finer buildings; and we want to be able to do our share, creditably alike to ourselves and to you, who can do great things.

There are many differences to be observed in methods of construction employed in the Northwest, as compared with those in the East, says the Canadian Architect. The severity of the climate in winter makes it necessary to give the occupants of buildings greater protection against the cold. Hollow walls and box construction for windows are prominent features. Houses are built as far as possible without projecting features, chimneys being kept inside the walls in order that as much heat as possible may be retained within the building. It has been found that a thin hollow wall is of greater service as a protection against cold than a solid wall however thick. As during the period of frost there is little or no rain, no coping is required for brick walls and chimneys, and the exterior of buildings is not subject to disintegration by alternate thawing and freezing, as in a milder climate.

THE "PURE-AIR" PROBLEM.

By E. B. Northrop.

Eminent physicians throughout the world are now advocating, more strenuously than ever before, the "pure air" treatment for the prevention, amelioration and cure of all diseases incident to mankind. Open air sanitariums for those afflicted with tuberculosis are rapidly becoming recognized as a first necessity. Scientists who are devoting their very lives to the discovery of disease bacteria and how most effectually to prevent their ravages upon animal life, are also determining beyond question that polluted air is the potent incubator in which the most dangerous bacilli develop and thrive. Also, that pure air is Nature's antiseptic for the destruction of disease germs or the preventative of their development and distribution.

There has never been a time in the progress of the science of *materia medica* when so much importance has been attributed to pure air as an essential to human well-being, as now.

Without doubt a vast majority of the people of the United States pass at least two-thirds of their lives in a polluted atmosphere—in the school rooms, in the churches, in the factories, in the shops, in the stores, in the office buildings, and in the homes. This is something which the physician can deplore and warn against, but cannot prevent.

It is the architect, and the architect alone, who can solve the question of pure air supply to the occupants of buildings, be they the living, or working places of the people.

It follows, then, that the science of architecture will be looked upon by the science of medicine to determine how best to provide Nature's antidote to bacterian evils which are daily jeapordizing human life. A responsibility is therefore placed upon the architect which modern civilization will recognize and appreciate in proportion to the benefits which became apparent.

In this connection The Western Architect wishes to emphasize the fact that efficient ventilation of rooms, no matter what their size may be, cannot be accomplished by any system which does not take the air from the very floors of the apartment. Merely a vent for fhe air which rises to the ceiling is of but little aid in purifying the inclosed air. The fact that polluted air is much heavier than pure air, causes the bacteria (or any pollution) to remain upon or within a short distance of the floors; and it therefore constantly occurs, that while there seems to be a regular renewal of fresh air in a room through upper side-wall or ceiling ventilation, yet actual increase of polluted air is going on all the while in the vicinity of the floors. Unless there is some way—like an open fireplace—of actual withdrawal of what may be termed the "floor air," then air pollution in an apartment will constantly increase, even if it is not occupied. This truth compels The Western Architect to deplore the present discussion concerning the best way to cleanse the floors of school rooms and public auditoriums, as there seems to have been created a theory that this or that method is sufficient to rid a school room of whatever dangerus bacteria may there exist. While the fact remains, that constant renewal of floor air is quite as essential as the proper cleansing of the actual floors.

It is obvious that some one of the present effective systems of ventilation which will draw off the foul air from the floor of rooms that architects must adopt, if they give heed to the facts which medical science has demonstrated, and if they would take their rightful position among the promoters of the welfare of humanity. No part of the proper sanitation of a modern building is of greater importance than that of the means and methods whereby pure air is constantly supplied to every inclosed portion of either residences or public buildings. In these days of steam and hot-water heating, as against the older method of hot-air furnaces the necessity for effectual ventilation is becoming more and more important.

The most important work to which the present-day architect can devote his intelligence and authority, is the compelling of the use of such system of ventilation as shall insure an absolutely pure air supply to the interior of every edifice which he is called upon to construct.

Lucknow has the reputation of being the home of the Mohammedan aristocracy in India, and a large number of its wealthiest and most influential citizens belong to that faith. Their cathedral mosque is one of the finest in the country, and the imambra connected with it is a unique structure, and contains the largest room in the world without columns, being 162 feet long by 54 feet wide and 53 feet high. It was built in 1784, the year of the great famine, in order to give labor and wages to a hungry people, and is one solid mass of concrete of simple form and still simpler construction. The architect first made a mould or centering of timber, bricks and earth, which was covered with several layers of rubble and coarse concrete several feet in thickness. After it had been allowed a year or two to set and dry, the mould or centering was removed, and this immense structure, whose exterior dimensions are 263 by 145 feet, stood as solid as a rock, a single piece of cement concrete literally cast in a mould, and, although it has been standing 125 years, it shows no signs of decay or deterioration. The word imambra signifies "the patriarch's palace." The big room is used for the celebration of the Moslem feast of Mohurram, which commemorates the martyrdom of the sons of Ali, the immediate descendants of Mahomet.—William E. Curtis in Record-Herald.

One day the great architect Richardson was approached by a man who had only $1,500 to spend on a house. The difficulties of the problem appealed to Richardson so strongly that he took hold with a zest. It put him on his mettle to produce an artistic result from purely structural conditions. But when the client announced that he could afford $3,000 he was dismissed with a wave of the hand. The great man's interest was gone.—Country Life in America.

CORROSION OF ARCHITECTURAL STEEL.

Although the report of the Insurance Experiment Station in Boston on its recent tests of steel corrosion, under conditions approximating those of steel columns in modern buildings, confirms the results of previous tests of this character, the subject is of such supreme importance that we give herewith, says the Scientific American, a brief digest of the facts. Of course, the value of such experiments depends upon the correctness of the assumption that a severe trial of a short duration gives us the data from which we can argue as to the results of a less severe test, extending over a far greater period. Each specimen of steel was cleaned and encased in Portland cement concrete of varying composition. After the concrete had set for 24 hours in air and seven days in water, the specimens were exposed to as severe tests as could be devised, and after various lengths of time the cement casings were broken and the steel specimens were claned, weighed and measured. The conclusion is reached that if structural steel is encased in a sound covering of good concrete it is proof against corrosion for a period of years which is so long as to make the subject of more interest to our great-grandchildren's children than to us. In other words, steel, properly covered with concrete, may be expected to last until charnges in the laying out of the city, or in the substitution of yet more modern construction necessitates the removal of the building. Obviously, the life of the costly office buildings, hotels and warehouses that are being erected in such profusion, depends not so much upon the work of the steel-maker, as upon the particular "boss" who has to watch the mixing of the cement and its application to the skeleton steelwork.

FIRE-PROOF BUILDINGS.

There has never been any sort of edifice or structure built by man that could not, under certain conditions, be destroyed by fire or heat. In the historic fire in Chicago it was noted that pig-iron piled upon a wharf several hundred feet distant from any building or ignitable material, was melted as though it had been run through a blast furnace. And that was just what had really happened to it; for the iron was melted because super-heated air was forced upon it through tweers or blow-pipes created in the surrounding atmosphere. In all conflagrations which assume large proportions the surrounding atmosphere becomes heated to a degree which, with the wind created, easily and invariably produces some degree of this "tweer" or blow-pipe action; and when that condition arrives no art or appliance of man can prevent the destruction of any structure upon which the blast happens to be directed.

The fact that in every great conflagration certain buildings will remain standing while others, possibly adjoining and apparently more substantial, are quickly destroyed, is simply because the "tweer" blast has missed the structure which has withstood the fire. Even wooden structures remained comparatively uninjured in the great fire at Ottawa, while so-called fire-proof buildings in the immediate vicinity were absolutely consumed. The same phenomena was observed in the two great fires which devastated Chicago, and also to a lesser extent at Baltimore.

The only absolutely fire-proof condition of any city lies in the subjugation of conflagrations before the atmosphere has become heated to the point where 'tweer" action is created.

LIFE IN AMERICAN WORKSHOPS.

Mr. Hans Renold gave an instructive lecture recently in the New Islington Hall, Manchester, England, upon "Life in American Workshops," from the point of view of an English engineer, says the Architects and Builders' Journal. To understand the question aright, said the lecturer, one had always to bear in mind that America was 33 times larger than Great Britain, with double its population. Dealing more particularly with New England, he declared that it was impossible for a visitor to be a week in the neighborhood of Virginia without feeling the different atmosphere. Electric sparks seemed to fly about and give the feeling that no task could be too heavy. Everybody seemed to be hopeful, not to say sanguine. With that frame of mind, surrounded by vast natural resources, was it surprising, he asked, that one found so many enterprising people? Speaking in regard to the workshops of America, these, he said, were owned and managed by a more active, better-informed and better-educated set of men than was the case here in England. To prove this he instanced a workshop in Philadelphia where 30 out of 60 men employed in the office were technical high-school graduates. In the matter of technical instruction, he declared that England was 50 years behind. True it was, he said, that in building its new school of technology, Manchester had attempted to grapple with some of our shortcomings, but unless a broadly conceived, non-sectarian secondary system of instruction was established all through the land, the people of his country could never hope for an adequate return for the money spent on their technical schools. Regarding the work produced in America, he said shop-workers were better fed and less given to drink than Englishmen, consequently they were more steady workers. They were less hampered by trades-unionism, and while not condemning the unions, he thought English workmen would be better fitted if their leaders had a wider understanding of economical laws and industrial problems. They wanted to arouse in the mechanics a desire to do better than they had ever done before—to be more wide-awake and to become more cheerful and happy.

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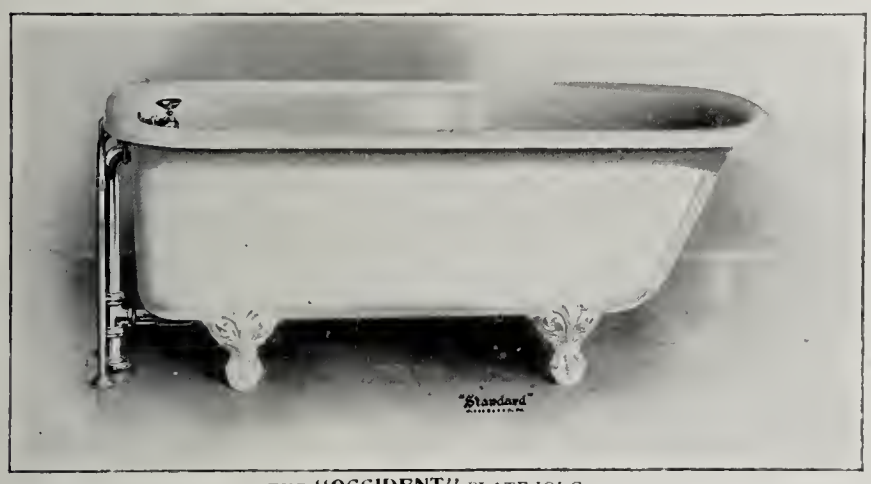

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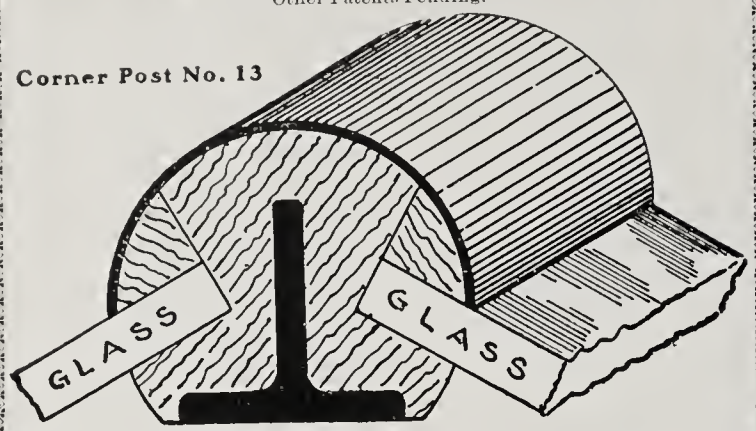

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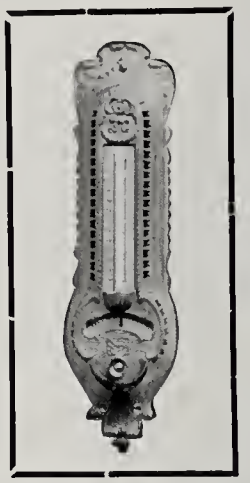

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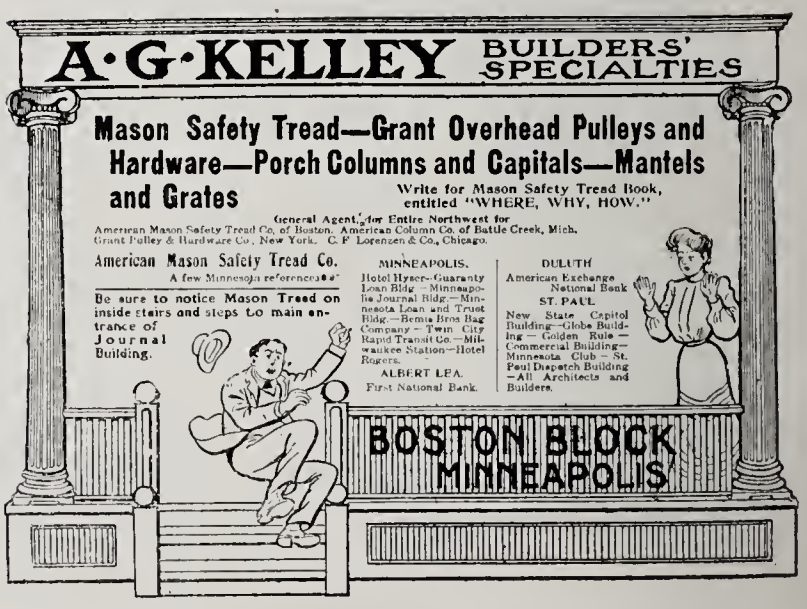

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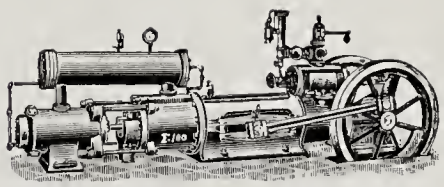
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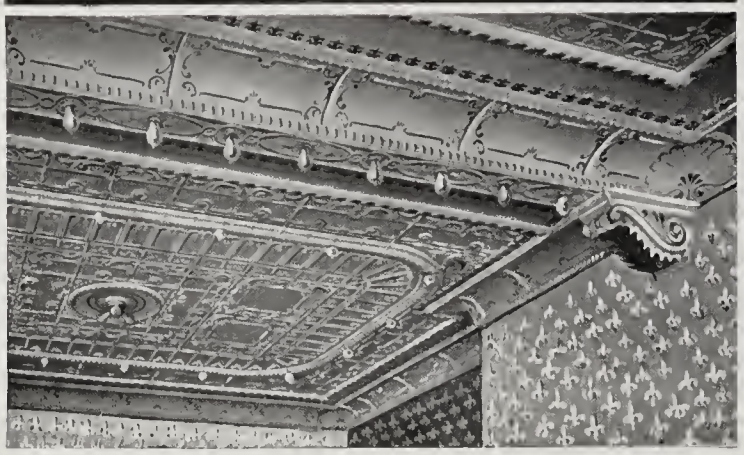

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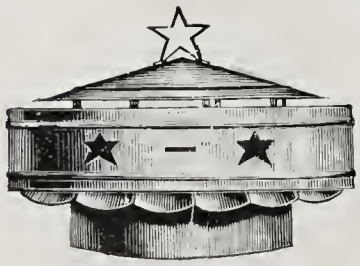

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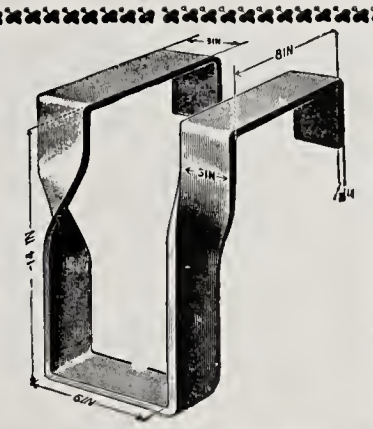

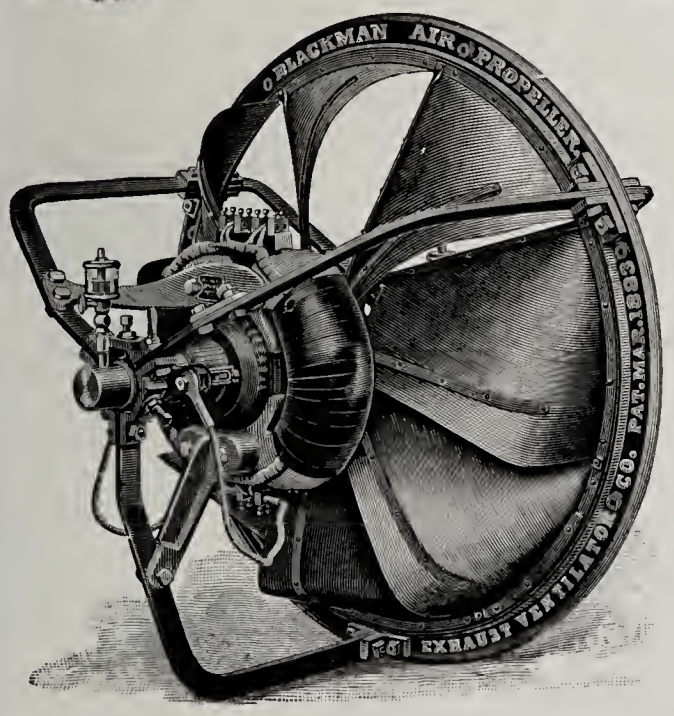

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The Government engineers, after the usual careful and painstaking investigation, have also approved it and specify its use in Government Buildings.

While we expect to enforce our rights to the extreme limit of the law, we have made arrangements to **protect the public** and give builders and others an opportunity to procure the end-matched flooring **without danger of litigation.** This may be done through our licensees who, in order to identify the licensed flooring, will invariably mark it **Wilce Patent Jan. 1st. 1895**, together with their own **name or trademark.**

Rumors are afloat that the price of end-matched flooring will soon be advanced two or three dollars a thousand. We wish to say that there is no foundation for any such rumor, and in this connection we ask you to

REMEMBER

FIRST. That the United States Circuit Court has fully sustained our Patent.

SECOND. That we not only consented but joined in the request to reopen the case to permit further evidence to be submitted.

THIRD. That this action does not indicate any change in the **opinion of the Court**, as it was by consent of both parties.

FOURTH. **That end-matched flooring has not been advanced in price** and **will not** be at any time, any more than is warranted by the usual conditions governing the lumber trade.

FIFTH. That there is not an **inch of waste** in laying end-matched flooring, and besides this there is a **great reduction in the cost** of laying it.

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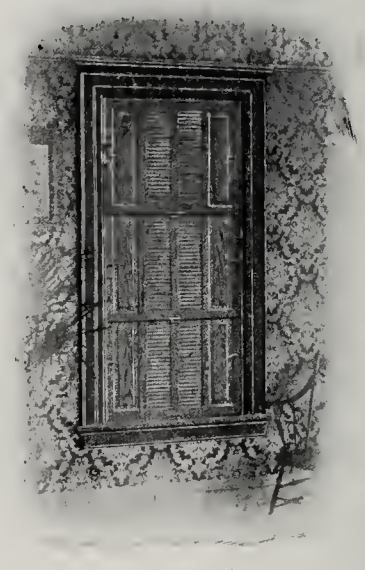

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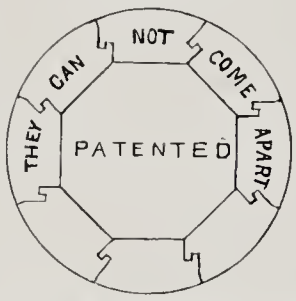

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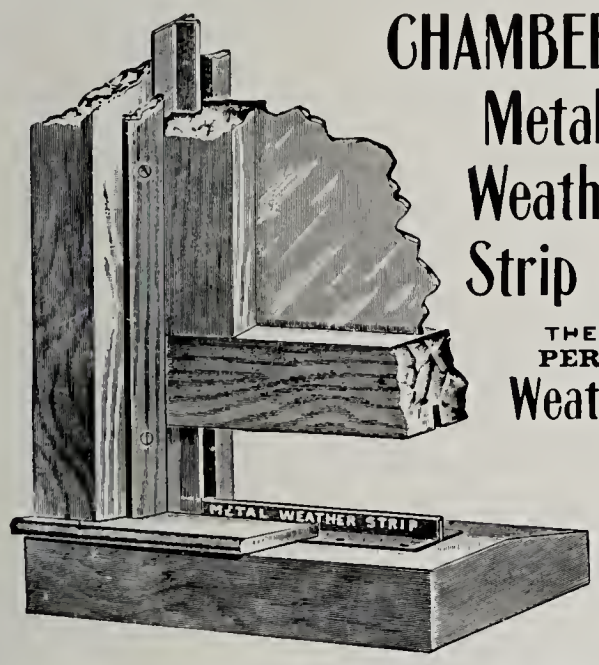

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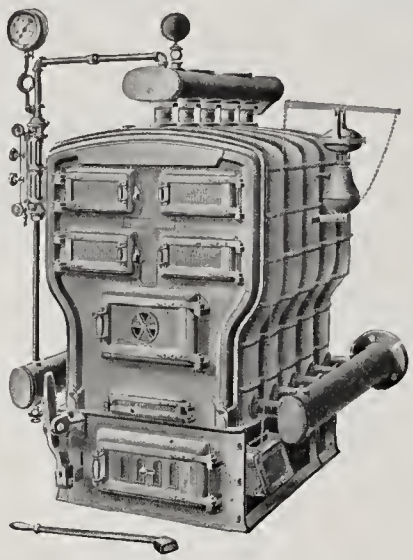

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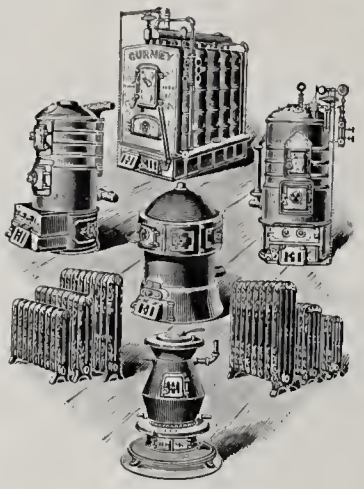

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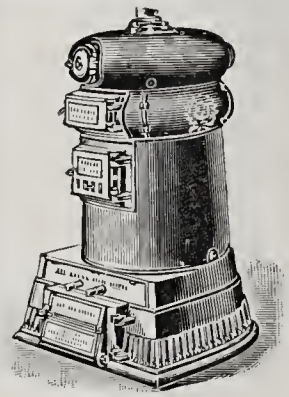

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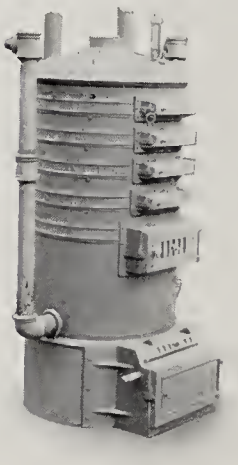

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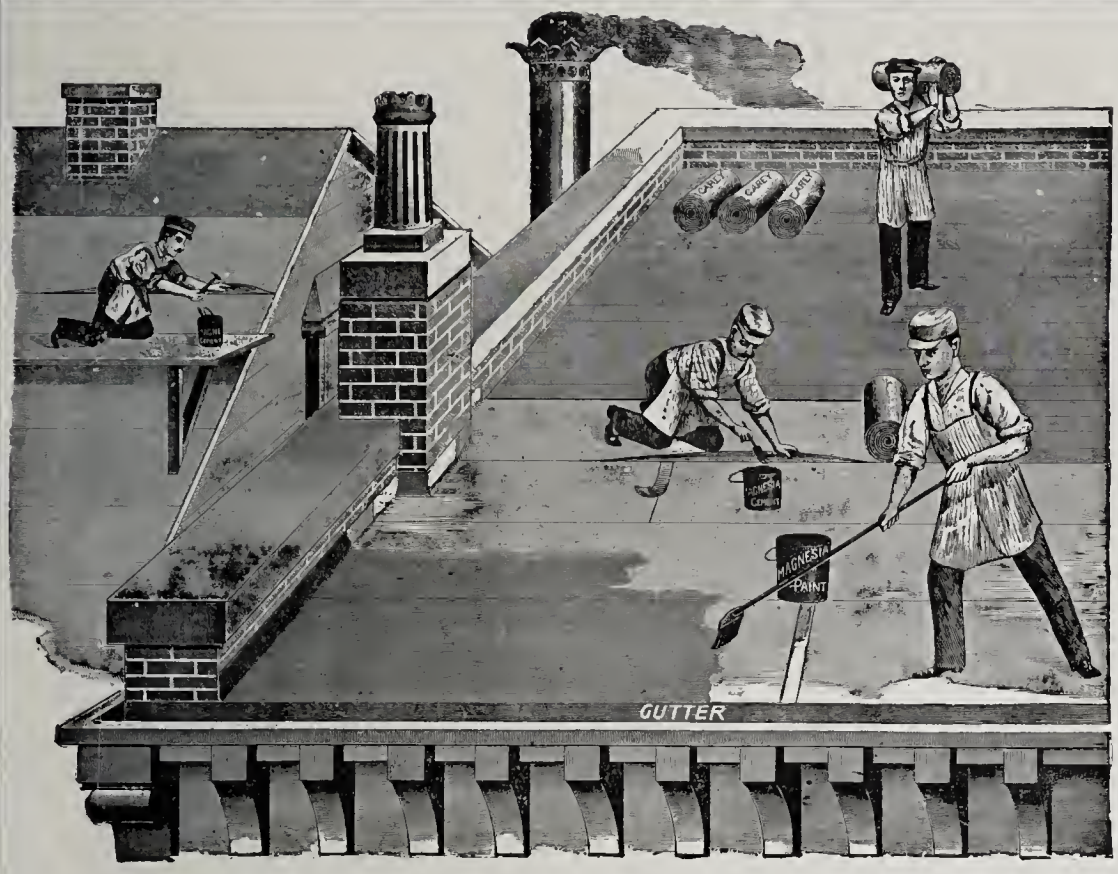

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THE BUTCHER FLOOR POLISH FOR CAR INTERIORS AND INTERIOR FINISH.

Some idea of the delicate composition of the Butcher Floor Polish may be gained from the fact that the Pennsylvania Railroad Company are now using this polish largely in their shops at Altoona, Pa., for polishing up and revivifying the finish of the interior woodwork of their finest passenger coaches. Of course the special mission of the Butcher polish is to improve the appearance of parquetry and hardwood floors of all kinds, and it does this better than any similar preparation on the market.

THE ZENITH CITY.

At the head of Lake Superior, the most westerly point on the great chain of inland lakes, which reaches from the northern part of New York state to northeastern Minnesota, lies the great lake port, the city of Duluth, Minn.

The population has grown from 3,483 in 1880, to 75,000 in 1904. It has, perhaps, the best harbor of any city in the world and the number of vessels which arrived and cleared in 1903 was 8,646, with a total tonnage of 9,002,530 tons, valued at about $87,482,976.

The assessed valuation of real estate for last year was around $30,000,000. It has nine railroads which make their terminals there, and commands a large and increasing trade from all the northern and western states of the Union,—the facilities for shipping both by water and rail being almost unequaled by any other city in America.

There are many concerns in the building trades line in Duluth which not only have an immense local business but also enjoy a large and increasing business throughout Minnesota, North and South Dakota, Montana, Wisconsin, Iowa and Nebraska, as well as in Manitoba.

In the architectural iron business, there is the National Iron Works, which manufacture all kinds of columns, beams, channels and general architectural work for buildings. Their foundry and works are located at the corner of Fifty-fifth avenue West, and Ramsey street, and cover a very large area of territory. They are always willing and ready to figure on all contracts, whether large or small, and should be seen and consulted before contracts for work in their lines are closed.

In galvanized iron and copper cornice work, no house in the Northwest is better or more favorably known than that of Deetz & Co., at 404-6 East Superior street. Established several years ago, they have by persistent effort, with good business management and the very best of facilities, built up an enviable reputation as a first-class house in this line. Besides manufacturing galvanized iron and copper cornices, they also make ornamental zinc work, fire-proof doors and shutters, galvanized iron sky-lights, ventilating pipes, smoke stacks, etc., while they also do all kinds of roofing, including tin, iron, slate, pitch, gravel and asphalt. Architects, contractors and owners cannot go amiss if they will only consult this obliging firm when desiring anything of this kind, as it is a pleasure for Deetz & Co. to submit estimates upon all work of the above nature, when they are invited to do so.

While Minneapolis is supposed to lead in the manufacture of lumber and all kinds of mill work for interior purposes, the city of Duluth has some concerns of such great magnitude that they would be a credit to any city in the world. The Scott Graff Lumber Co., which is well known all over the Northwest, are the peers of any similar concern in this country. They manufacture and sell, either by the load or car lot, all kinds of lumber, sash, doors and mouldings, besides doing an extensive business in office fixtures and stair work. Estimates are always cheerfully furnished, especially upon architects' drawings and specifications.

Mr. Louis R. Helbing, located at 322 East Superior street, Duluth, Minn., though not the only one engaged in roofing and cornice work in the Zenith City, is, nevertheless, one of the oldest in his line, having been established for many years, not only in the roofing business, but also in all kinds of tin and sheet metal work. He invites architects, owners and contractors to correspond with, or to call and see him for estimates on all work of this nature. He guarantees the utmost satisfaction in each and every case. His long established reputation is a sufficient guarantee in itself to safeguard all who entrust work to his care.

Another concern which has won prominence among Duluth's enterprising business houses, is that of Burrell & Harmon, sheet metal workers, and makers of galvanized iron and copper cornices, skylights, fireproof doors and shutters, sheet steel ceilings, roofing in tin, iron, slate, pitch and gravel. This reliable and energetic house is located at No. 3 South First avenue, East, where they carry in stock a full and complete line of warm air and combination furnaces. Messrs. Burrell & Harmon make a specialty of the subject of heating and ventilating,—the most important of all things in connection with the comfort and health of the occupants of all buildings. They also handle Electric Heat Regulators, which automatically control the temperature of the rooms of dwellings, and add not only much to the personal comfort of humanity, but save much time and annoyance in attending to the heater. A firm so well known as Burrell & Harmon needs no special comment from us in order to call the attention of citizens of the Zenith City to their business, but as they are equipped to take contracts in their line of work in any part of the Northwest, this may be the means of calling the attention of some outside readers of THE WESTERN ARCHITECT (who have never before been informed regarding their location), and we can assure you in advance that any request for advice, specifications, estimates, etc., will be complied with cheerfully and promptly, and any work entrusted to their care will be given their earnest consideration, and the result of same is sure of meeting with our readers' honest approbation.

FAMILIAR TO ARCHITECTS AND BUILDERS.

We have lately received from the American Sheet and Tin Plate Co., a handsome show card, which they are mailing to architects and contractors, illustrating the trade-marks and mill brands of their various products, including their "(MF)", "Apollo v Best Bloom" and "U. S. N. M. Roofing Tin," which they have lately been advertising in the WESTERN ARCHITECT, and through which, many of the architects of the west have become familiar with this excellent line of goods. A good product conspicuously advertised in first-class architectural journals, does much towards building up an extended business, and such products as emanate from the American Sheet and Tin Plate Mills, have rapidly gained the reputation of being all that the architect or owner desired as durable roofing materials, such as will stand the test of wear in any climate. When using material for roofs, or any other sheet metal work, architects and roofing men should be sure and see that each box and sheet of material bears some well-known and reliable trade-mark like the above, then they may rest assured that they are providing their buildings with as good material as is manufactured.

A MODERN CLOTHES DRYER SYSTEM.

To those interested in the construction and furnishing of the modern building, we would call attention to the Canton Clothes Dryer & Mfg. Co.'s product, whose ad appears on page eleven.

Their line includes anything from a five-rack dryer for residences, to a twenty-rack insulated for institutes, heated by hot air, hot water, steam or gas. They are just issuing a handsome catalogue illustrated with wash drawings, which is sent to those interested.

They claim a great many good features for their product. It is very economical, as the heat used in drying the clothes boils the water and heats the irons, all being utilized, and requires only five cents worth of fuel for an ordinary washing.

The system used keeps the air, constantly circulating through the dryer, which ventilates the articles in the process of drying.

The dryer consists of a drying cabinet and a laundry stove. The cabinet is manufactured of galvanized iron, with a reinforced wrought iron frame, and is very strong, rigid and durable.

The sides are paneled, which gives it a very handsome appearance. The wire screen, hanging rods and guides are of a non-corrosive galvanized metal, which will not soil or injure the clothes.

The laundry stove is especially constructed to heat the cabinet, boil water for the clothes and heat the irons. It is fitted with a reversible grate adapted to use hard or soft coal or wood.

The heating and ventilating, combined with the system of controlling employed, renders it impossible to overheat or burn the articles in the process of drying, and from experience it has been shown that the clothes are taken from the cabinet as white, clean and pure as if dried by the sun or wind, and as the dryer can be operated at any time under any weather conditions, the many little trials and discouragements incident to wash-day are overcome by its use.

If the stove only is to be used, by opening a damper, the heat may be conducted through the stove and chimney without entering the cabinet.

The materials used in the manufacture are very durable and the design and workmanship is the best. Particular attention to minor details being a special feature.

FIRE-PROOFING AND CONCRETE CONSTRUCTION.

THE INTERNATIONAL SYSTEM.

Few catalogues have come to our table that possess so much of interest as that of the International Fence & Fire-proofing Co., of Columbus, Ohio, showing by working drawings and photographs just what this company is doing for architects who want to meet the present demand for fire-proof buildings.

The company's system is very simple, and when one has read this short catalogue, with its tables and certificates of tests from well-known architects and fire-commissioners, he is not left in doubt as to the value of this construction. The company manufactures a steel wall fabric of stock widths of 4, 5 and 6 feet, which is reinforced by steel cables two or four feet apart. This cable, in standard size, contains seven strands of No. 9 wire which are twisted under hydraulic tension and formed with an eye at each end. They are as stiff and rigid as bars, with much greater carrying power and none of the disadvantages of bars. The hard drawn steel wire in these cables has a yield point nearly three times that of ordinary commercial wire.

Photographs of complete and incomplete office, hotel, school, factory and other buildings, including a ball-park grand-stand, are given, and cannot fail to be of interest to any architect The tests are very instructive and strongly remind us of the value and possibility of concrete construction, especially with such embedded steel cables and fabrics as this company manufactures.

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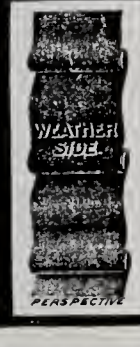

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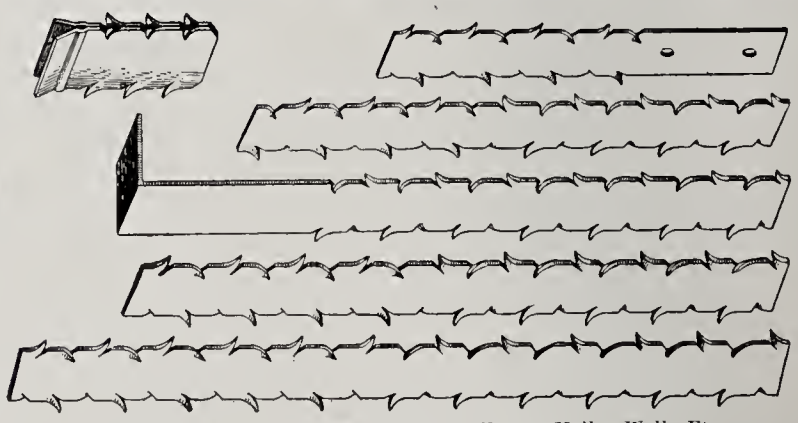

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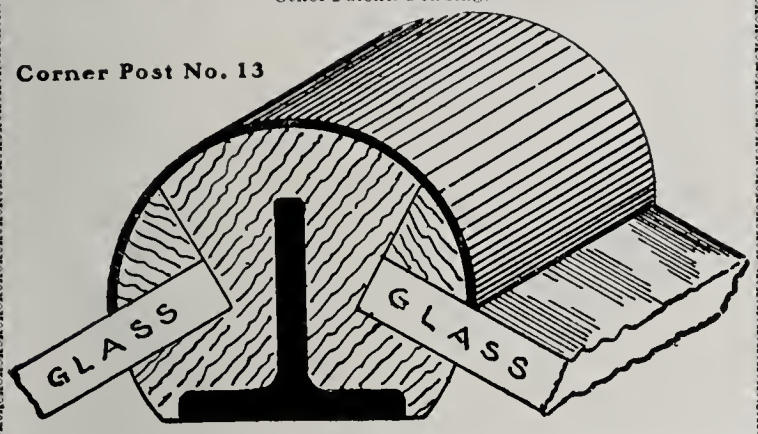

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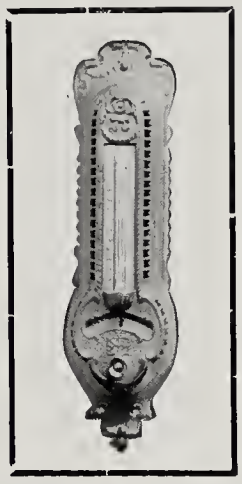

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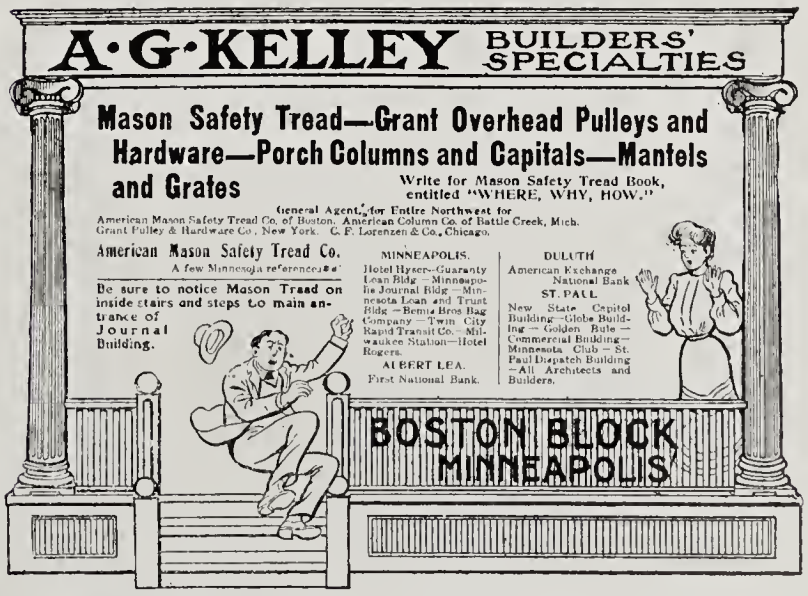

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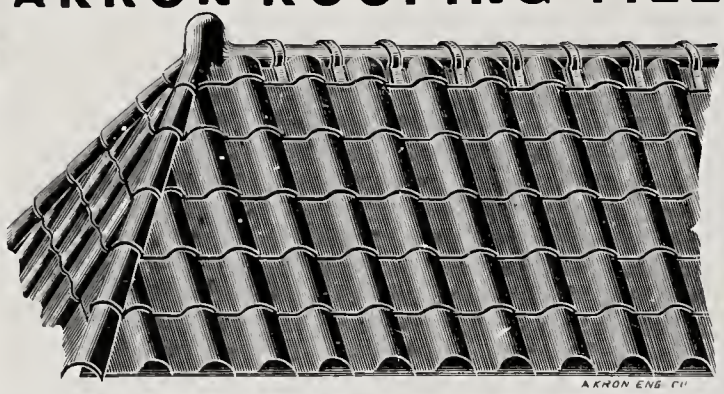

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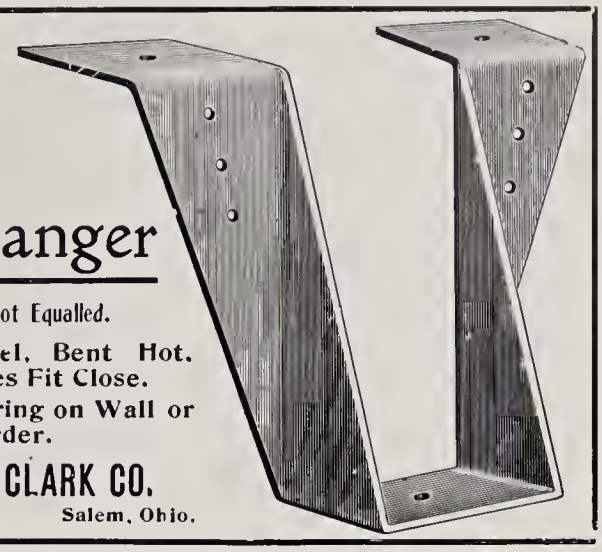

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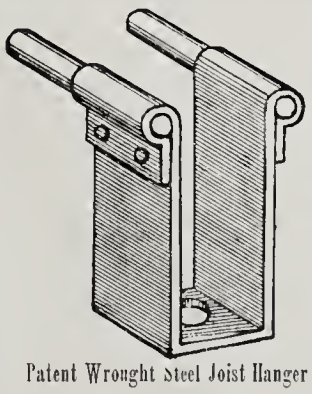

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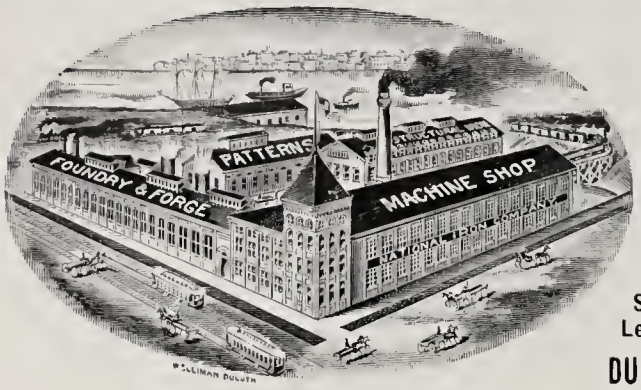

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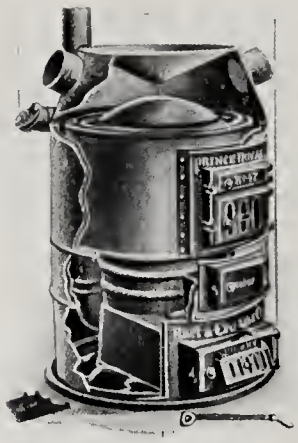

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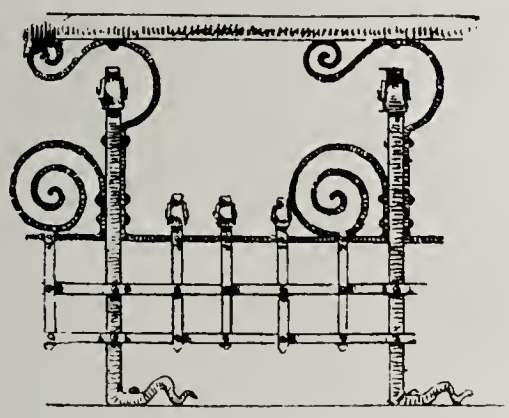

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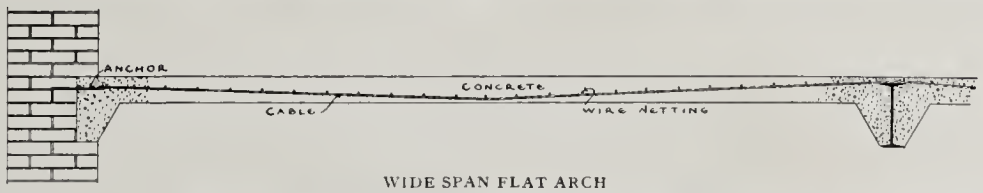

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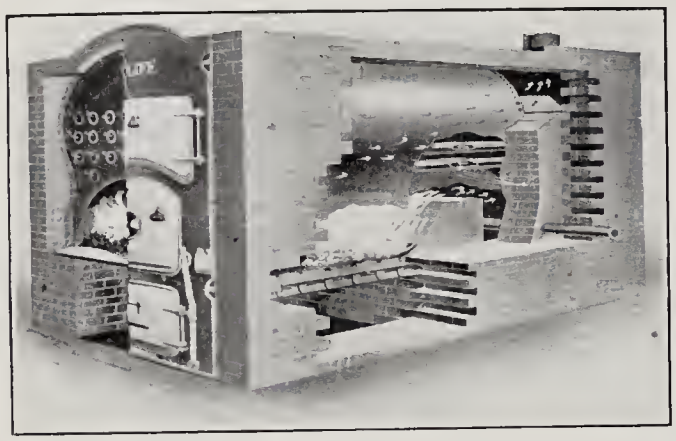

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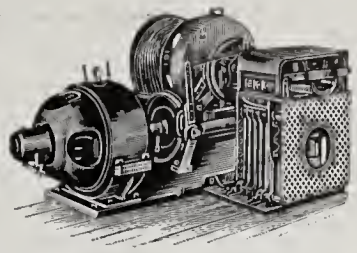

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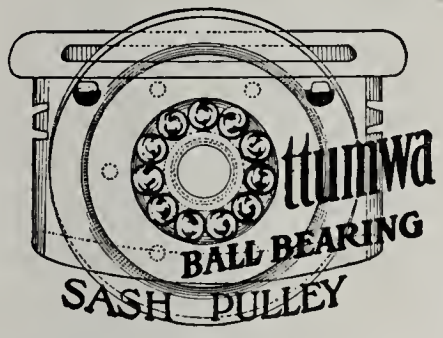

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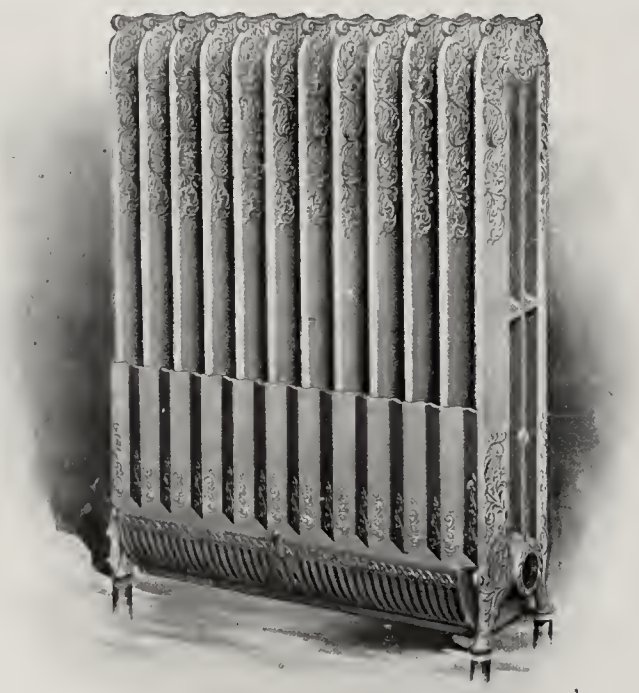

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THAT Colorado labor troubles will fail of far-reaching consequences is hardly conceivable. The assumption by the authorities that men belonging to a workingmen's organization may for that reason be bundled onto trains and run out of the state and dumped, that union men whose families are without means may by the same authority be denied access to the union treasury, that a mine may be closed down because it employs union labor, are assumptions never made before by military authority in this part of the world—or any other—that we recall.

THE proposed merging of the Mass. Institute of Technology with Harvard has stirred up the graduates and former students greatly. At the recent Technology Reunion the most striking feature is described as an enthusiastic determination to see what could be done to assist the Institute to maintain her present independent position. This spirit was so manifest that a number of former students afterward met at the Technology Club and undertook a canvass for funds to place the Institute on an independent footing. To that end a circular has been issued to former students by an executive committee consisting of Dr. Francis H. Williams and Mr. James P. Munroe of the Corporation, and Professors R. H. Richards and Francis W. Chandler of the Faculty.

BUILDERS of the excursion craft plying around New York and the government inspectors who are supposed to keep an eye upon their safety appliances may think it a case of pot calling the kettle black for a representative of ordinary building to pass remarks upon the conditions existing upon the General Slocum at the time of the disaster; but it really taxes the imagination of a person familiar only with kindling wood architecture ashore, to fancy how a ship can be made to burn as did this ill-fated craft, except by design. It is true that most of the building ashore is what one might expect if conflagrations had never been heard of before the buildings were completed and occupied, but this ship appears to landsmen to have been even worse.

Its fate, and the fate of many a structure where people congregate ashore, form a fine commentary upon the civilization that is daily proclaiming itself called for the uplifting of all manner of "inferior" races.

REPORTS of steam railroad building for the first half of the year make rather a poor showing for the country at large, but particularly so in the territory of this big merger of which so much is heard—a condition that has prevailed in this territory for several years. As this same territory has had the benefits of good crops with high prices for them, of heavy immigration and phenomenal advances in land prices during that time, it is possible that some carpers may soon be asking about the benefits to be derived from a private monopoly of transportation interests. The stagnation in this particular part of the country does not come as a reaction from great extending of railways in recent times, nor does this stagnation find a parallel in building conditions generally. Neither can it be charged to the competition by trolley lines, for this section has seen much less of this trolley building than would properly fall to its share. Neither can the entanglement of the Jersey incorporating with the courts be assigned as the cause. The Jersey incorporating was helpful in adding a hundred or two hundred millions of capitalization, but did not materially affect the income of the roads concerned. Nature's bounty and trade conditions took care of the income. Court decisions had no more effect upon the income than upon the real ownership and management of these roads or upon the rates they are charging for service. They don't extend their lines or reduce their rates in response to the growth of the country supporting them because they don't have to—they are not competitors and have no competitors.

ALUMINUM has failed to take the important place in the arts predicted for it when it came to be produced on a commercial scale a few years ago, and possibly the curious discovery announced some time since, that a piece of aluminum makes a fairly good hone may also explain its want of utility in many situations. Attempts have been made to substitute aluminum for brass of bronze in such situations as mounts for lenses for portable instruments used in surveying, in photographing, etc., but we believe that the best makers now discourage its use, especially where screw threads having considerable wear are involved. The property that would qualify the metal for honing other metals would disqualify it for the friction of threads. At any rate it is noticeable that the common thimble-shaped pressed aluminum covers to collapsible tubes of office paste have a curious way of roughening the softer metal of the tube greatly with but little use.

THE concrete fad appears to have been thrust so suddenly upon contractors that many of them are at sea in estimating both labor and materials, with the result that bids for concrete often vary as upon no other portion of the work. Labor cost will, of course, vary much with skill and ways of handling. Apart from this the physical character of the materials used has a good deal to do with the proportions required to secure certain results. Not all contractors or engineers yet recognize the value of having all sizes in both sand and aggregate. Sands, including very fine and very coarse, will require less cement than either fine or coarse; and crushed rock that is not screened in any way will save much sand and cement, as a yard of such crushed rock will weigh considerably more than a yard of screened rock.

One published estimate of materials required in a yard of concrete in place, and supposed to have its origin with government engineers, places the quantities needed for a mixture of 1, 3 and 5 at 1.25 bbl. Portland cement, 0.5 yard sand and 0.9 yard crushed rock. This estimate is probably based on screened rock and coarse sand. We have it from a reliable contractor that on one occasion he put in 35 yards of concrete, following the proportions of 1, 3, and 5 as carefully as possible and used a trifle less than a barrel of cement to the yard. While having no reason to doubt this statement, we are inclined to think the character of his materials uncommonly favorable. Of course, with mechanical mixing and thick walls much coarser aggregate is practicable than with hand mixing and thin walls, and as the finer stuff is displaced by the larger stones cement is saved. There even are cases where quite a percentage of the concrete may be profitably made up of clean cobbles or other stones placed upon a newly rammed layer so openly that the next pouring will easily fill between. This seldom saves in labor but might save cement appreciably. So much do statements vary as as to the proportions of different materials required that we will be glad to give space to publish carefully recorded results.

THE publishers of McClure's Magazine have placed students of the industrial situation under obligation by the articles bearing upon different phases of it which have appeared in the columns of that monthly from time to time. Those by Mr. Baker on the labor situation are especially instructive and suggestive. In the current number organizations of employers for the purpose of fighting or treating with workmen's organizations are treated with an insight and broad temperance very rare in writings of the class. There has been so much antagonism with so many tests of strength between the parties and so many outside interests have been touched unfavorably by these contests that it is not so easy to keep from taking sides.

Mr. Baker, at the time of preparing the article succeeded in maintaining an attitude of fairness to both sides, but it was his good fortune to have done with the preparation before late Colorado developments. How he might have written after the exploding of a "mine" under a group of non-union men, and after union men had been shipped out of the state by the military authorities upon no other charge than that they belonged to the union, or after the same military authorities had closed a mine because it employed union men, luckily for the writer and for the discussion we do not know. Mr. Baker leaves us with the impression that workmen's organizations, having had the longer experience, are really better disciplined and more competent as organizations than are their opponents.

The helpful and hopeful things about the article are to be found in the sayings and doings of some of the wise and self-restrained members of both the contending parties. The account of the relations between the Chicago Metal Trades Association and the various unions with which it had to deal should be read by everyone at all interested in such disputes. "The reason for our success" said Mr. Hibbard, the president of the Association, "was that both sides started out with an honest intent—honest, mind you—to live up to the agreement in spirit as well as in letter. I believe firmly that good faith will always bring success in these arrangements. They may talk to my workmen outside of shop hours all they want to, they are at liberty to get them into the union if they can, but they mustn't use my time to talk either unionism, religion or other matters not pertaining to my business." Here are a few statements from union leaders having relations with the Association. "We agree to the 'open shop,' but we are getting the non-union men into our organization. I would rather work six months and get a man by good will than to get him by force. The mere getting a man into the union doesn't mean that he is organized."

"The union should keep the strike as a last trump up its sleeve. I've been a labor leader for eleven years and never called a strike, and never intend to if I can help it."

The article contains so much in contrast with the above as to leave the reader anything but cheerful.

Instances of boycotting and blacklisting are given that fully bear out the crudity, the folly and worse of some of the employing associations. No attempt is made to discuss the economic side of the situation—that would have trespassed too much on the space of the mid-summer number—yet the effect upon the productiveness of an industrial branch of a policy like that in the Chicago metal trades must be obvious to all who have not derived their economic teachings from some of our modern teachers who would have us believe that warfare of some sort is essential to success of any sort—that in order to build you must do some wrecking to obtain materials.

That this is not destined to become altogether an age of germicides, of sterilization, is shown by the rise of a new and curious variety of contractors. So much has been written and said of late about the ravages of insect parasites among trees and lesser vegetation, and the great labor and expense thrown upon people of different localities by the poisonous sprays that they are obliged to use in keeping the pests in check, that some bright people have been set thinking and have evolved a theory that has stood a few tests very successfully. As most of these pests are exotic it occurred to some of these people to trace them back to their homes and learn why they were so much less troublesome there. In all cases it was found that they were there kept in check by some parastic enemy which had failed to be exported with them. In several conspicuous instances the introduction of this old enemy into his new home gave the nuisance so much to do that he ceased to give further trouble. While conservatives warn us that the remedy might easily be worse than the disease, it is hardly to be expected that the warning will be heeded in the face of several conspicuous successes already scored. So, now comes the new contractor, with proposals to transplant the proper enemy and set him at work upon the pest; no cure—no pay. The prices asked appear to be such as would leave a good margin of profit, but a success in such cases is worth a high price.

There is in the new method also more promise of success than in the poisonous sprays, which have for some reason failed to go to the bottom of the evil, probably because every here and there a bunch of the nuisances will escape,—just enough to seed down the whole area affected the coming season. A section of New England may be cited where a "fool scientist" is said to have let loose a "specimen" years ago, and any amount of money has been spent in a fight to keep his "gypsey moth" from destroying the elm trees. At present the pest is claimed to have the best of the fight and the people of the afflicted area are looking to the introduction of some enemy to the nuisance for relief. Were some new unchecked pest of this sort to be let loose in our forests, the treatment by sprays would fail altogether, both because of the diffiiculty of reaching the pest by this treatment, and because we have scarcely begun to give scientific care to our forest areas, and consequently could not hope to cope with such an infliction. Such a mishap might easily prove more calamitous to building interests than do forest fires, which are doing so much to raise the pine of the remaining available timber.

Some tests of cements that have been carried on by the U. S. Ordnance Department at the Watertown Arsenal indicate that the quality of fineness is far more important than commonly believed, and for reasons that have not been at all suspected. Failures in cement constructions that have set up satisfactorily and made favorable showings in early stages, degenerating at later periods, have generally been attributed to some constituent chemically inimical to the product, which slowly succeeded in disrupting the true hydraulic set of the cement. This may be true in some cases, but the Watertown tests show conclusively that the presence of coarse cement in the mass may be injurious. Samples were screened and winnowed so as to take out the coarse particles, and two lots of bricquettes made, one with fine cement and granite dust of the size of this coarse cement and another in which the coarse and fine cements were mixed and handled as nearly like the granite and fine cement as possible. A third lot was made in which only the fine cement was used. Early tests showed nothing of enough importance to record in this connection, but the broken bricquettes being preserved for a period of two years showed a remarkable variation.

Those made of fine cement alone and those of fine cement and granite dust were in good condition, while those made of fine and coarse cement were in a state of complete disintegration.

While these tests do not show that the amount of coarse cement particles present in ordinary cements are absolutely dangerous in concretes, one can hardly escape the conclusion that another reason for insisting on finely ground cements has been added to the old one of their greater sand-carrying power.

By the death of George Frederick Watts in his 87th year, England loses, in the estimate of the best critics, the greatest artist she has produced in a century. His works appeal less to the critics whose vision is limited to technique and fashion, many of whom failed altogether to catch the subtler qualities of his work. The imaginative nature of the man could not be confined to painting as his only vehicle of expression, and what was his most famous piece of sculpture, "Physical Energy," a colossal equestrian statue, was proposed to be given a very prominent public place by Lord Salisbury. The honor was declined by Watts, however, for the singular reason that the cost to the public would be too great.

The great group, now cast in bronze, is to be used as a Cecil Rhodes memorial.

IMPRESSIONS FROM THE LOUISIANA PURCHASE EXPOSITION.

By E. P. Overmire.

Among the questions that arise in the mind of the average visitor to the Louisiana Purchase Exposition, assuming that he has seen those at Chicago, Omaha, and Buffalo, are likely to be these: Hasn't this exposition business about reached the limit? Wherein does this one surpass former efforts? Has the most been made of the opportunities presented? Will this one prove successful from a business as well as from the artistic point of view?

Replying to the first question, one feels impelled to say, after seeing this one at St. Louis, that the imagination of man would be strained to the limit to conceive of anything surpassing this as a purely artistic creation. In the items of grand and sustained scale, the massing and handling of units, refinement of detail and general harmony, it grows more and more impressive with study. Mere size alone, of course, will go a great way towards making an impressive composition. When to this is added refinement of proportions and of detail, a close study will but confirm and deepen the sense of satisfaction which the trained mind so eagerly seeks and welcomes.

One cannot but admire the masterly manner in which natural obstacles have been overcome and utilized, and this exposition impresses one with a sense of stability and permanency that is as agreeable as it is unexpected, the permanent buildings of Washington University and the Art Palace contributing, of course, largely to this impression. To one who can comprehend how the natural features of the site have been utilized, what an intricate problem has been met and solved in the preliminary work, which has resulted in most complete drainage and service systems, the finest system of fire protection ever installed, and the enhancement of every vista to the utmost, candor compels the acknowledgment that none but master minds, working harmoniously for a common result, could have conceived and carried to a successful issue the huge problem here successfully met.

The magnificent distances one is so well pleased to find here are made vividly real when one is compelled to traverse those same magnificent distances on foot, in getting from point to point, as is the case at the Louisiana Purchase Exposition. Any other method of transit will rob the scene of its most potent influences.

In the matter of electrical effects, this exposition can be pronounced a success, although the effect is enhanced by mere size very largely, and it is painfully apparent that many of the buildings have been "skimped" in this direction. They are not as effectively outlined as was the case at Buffalo, and the entrancing effects there attained, where the real buildings melted away into a dream picture, is not realized at St. Louis. The novelty of the scheme, too, is lacking here, and the romantic element is absent; an element, say what you will, that enters very largely into every successful art essay.

MAIN CASCADE IN FRONT OF FESTIVAL HALL

The picture presented by the cascades, fountains, etc., especially at night, is the peer of anything of its kind ever produced by the human mind. Parisians who have seen it for the first time have enthusiastically admitted this, and he must be a dullard indeed whose pulses are not perceptibly quickened at so beautiful a composition. But, after all, the impression is not so much that of vigor and power, as was the case at Buffalo; it is rather that of a gentle overflow from basin to basin, and the fact that huge machinery is doing all the work and generating the electricity, removes the very potent element that made the Pan-American display, where Niagara, some nine or ten miles distant, did most of the work, so charming.

Landing at the Minneapolis & St. Louis station, a temporary structure according well with the general character of the Exposition, one emerges directly opposite the Lindell avenue entrance, passes through the turnstiles, and finds himself in a plaza which leads direct to the Grand Court, or Plaza St. Louis, where the main buildings spread out fan fashion, converging at Festival Hall half a mile distant and elevated some 65 or 70 feet above the level of the plaza. Advancing between the Manufactures' and Varied Industries' Buildings to the Louisiana Monument, on the main axis of the composition, one has three splendid vistas to charm and delight him. Before him is the Grand Basin and Cascades, with Festival Hall and its swinging terraces and pavilions, the crowning and central feature of the picture, most satisfying to the lay and artistic mind above him:—(one of the most

LOUISIANA PURCHASE MONUMENT

regrettable features is that the splendid Art Palace is screened from observation from this point of view)—to the right are the Electricity and Varied Industries' Buildings, with a vista opening between to the French and Forestry Buildings, a mile distant. To the left are the Educational and Manufactures' Buildings, and a vista which is closed by the Government Building, which is elevated some 40 or 50 feet, and in both pictures are picturesque lagoons spanned by artistic bridges and livened by various sorts of water craft.

VISTA TO LEFT OF MONUMENT

A most enchanting foreground to the Government Building is secured by a sunken garden, making an impression never to be forgotten, particularly when one remembers that the Government Building is one of the very best architectural compositions on the grounds, and is so placed as to enhance its value to the utmost. The lagoons are much broader than was the case at Buffalo, and the Grand Basin is of truly noble proportions. The position corresponding to the sunken garden in the vista to the right is occupied by the Machinery Garden, a vast floral garden in the midst of which the Banda Rossa discourses sweetest music every afternoon and evening, carrying the writer back to past pleasures at dreamy Lake Harriet.

The above description includes the principal buildings, the heart of the Exposition. The important buildings, aside from these, are those of the Agriculture, Horticulture, Forestry, and Administration, all of which lie to the west, or right, of our point of observation. In this region are also the foreign buildings, mostly reproductions of famous buildings, giving a characteristic tone in each, which I shall not describe in detail. On the extreme left is the Plateau of States, where with few exceptions are structures offering rest and home news to the weary pilgrims from every quarter of the land. It is regrettable that Minnesota is not represented by a building more to her credit, the site being a prominent one, exciting much adverse criticism because of the contrast with neighboring states. The uncomfortable crowding of state buildings at the Columbian Exposition is happily

THE SUNKEN GARDEN FROM GOVERNMENT BUILDING

lacking here, every one having ample room and good setting, enhancing its good points most agreeably.

A Model City occupies the territory immediately facing Manufactures' Building. Here is located the Twin City building, which is a credit to both Minneapolis and St. Paul. It contains models, photographs, and drawings, which portray vividly the environment and best features of each city and the country surrounding.

At the time of my visit the American Institute of Architects was due to meet, and a few representatives were there from the East, including Messrs. Andrews of Boston, Stone of Providence, and Glenn Brown of Washington. The outside attendance was so small that the program which the local architects had planned was abandoned, the thing simmering down to a "spread and smoker" at the House of "Hoo-Hoo," on Wednesday evening, at which about 40 were present, and a good time enjoyed. This building was destroyed by fire early on the following morning, so it is reasonably safe to say that a "warm time" was enjoyed at that "spread." The building is now being rebuilt and will be turned over within thirty days as it

first stood, excepting the California woods used in its finish. It is of the bungalow type, with broad verandas, and is entered as part of the forestry exhibit, nearly every variety of wood found in the United States being used in its construction and finish.

Minnesota has creditable exhibits in the Educational and Forestry Buildings, and has taken the big prizes in the dairy and wheat producing departments. Her display in the Horticulture Building is also something to be very proud of. It is a great pleasure to realize the success of the Fine Arts Building, the one permanent building of the exposition, as it was designed by our State Capitol architect, Cass Gilbert. The main hall of this building with its tiled ceiling is particularly successful.

The grand organ in Festival Hall is an exhibit through the Liberal Arts department, from Los Angeles, Cal., covering 62 by 33 feet, 40 feet high, with 5 manuals, 140 speaking stops, 239 movements, and 10,559 pipes. It was the writer's pleasure to hear a recital upon this instrument by Prof. Andrews, of Oberlin. Owing to the immense size of Festival Hall, this organ does not appear unduly large, and its tonal qualities are admirably suited to the hall. Recitals are given daily by noted organists and composers, among whom Guilmant of Paris is announced during the fall.

The Philippine exhibit is vast, interesting and educational. The Boer War, Jerusalem, Athletic Field, Indian Village, Inside Inn, and last, but not least, "The Pike," will all appeal to the searcher for novelty and entertainment. It is common report that the best restaurants and the best sights of the show are found on "The Pike," so that one who fails to see this misses the best of the show, for human nature is seen here at its best.

After all has been said, the features of the exposition which appeal most strongly to the cultured mind, those whose effects are most uplifting and enduring, are the great works of the architect and landscape artist.

Unquestionably the solution of the problem is most happy, and the effect upon the mind most inspiring. The educational value of such an exposition is beyond calculation, as the progress from the old Centennial of less than thirty years ago to this, will testify. It goes without saying that such an undertaking would be impossible without government aid. It is a fact that such enterprises have never paid, financially, and it is not anticipated that this one will be an exception to the rule. It is generally understood that this will be the last exposition to which the government will be a party. Assuming the truth of this, it behooves all who can possibly arrange it, to visit and enjoy the Louisiana Purchase Exposition, especially those who reside in the Mississippi valley and are closely identified with the Middle States and their interests.

A most gratifying feature is the unusually comprehensive exhibits made by foreign nations, particularly those of Germany, France, Italy, Sweden and England. The educational exhibits are an inspiring object lesson of our development, both at home and abroad, promising a larger and more useful future to the coming generations, and straining the credulity and imagination in attempting to foresee the possibilities and privileges which those who follow us will enjoy because of the faithful, unselfish work of their forefathers.

FLORAL DECORATIONS AROUND FESTIVAL HALL

SPECIALISTS IN ARCHITECTURE.

Specialization has made great strides in the profession of architecture. Time was when a single architect with skilled assistants planned and designed buildings from cellar to roof, consulting an architectural engineer, perhaps, if the work was of such size and form as to involve serious engineering problems. Then came the era of architectural firms. One member of such a firm would be specially skilled as a designer, the artist of the combination; another acquainted with materials and methods of construction, so that he was able to superintend the work of the contractors; a third good at specifications or perhaps specially rich in friends and able to deal with clients.

Architectural firms in which men of various gifts participate are still numerous, but specialization has developed independent architects who are consulted by many firms upon special problems. There are men who do little or nothing but write specifications, and others who are employed by many of their fellow-architects in preparing the colored drawings intended to make unimaginative clients see how a building will look when completed. Architectural engineering is more than ever a profession in itself. Meanwhile the architectural draughtsman has also had his develop-

RESIDENCE OF JAMES S. LA PRELLE, ST. LOUIS, MO.
H. F. Roach, Architect, St. Louis

L RY
OF THE
UNIVERSITY OF ILLINOIS

HALL IN RESIDENCE OF JAMES S. LA PRELLE, ST. LOUIS, MO.
H. F. Roach, Architect, St. Louis

LI Y
OF THE
UNIVERSITY OF ILLINOIS

ENTRANCE TO JAMES S. LA PRELLE'S RESIDENCE, ST. LOUIS, MO.
H. F. Roach, Architect, St. Louis

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L RY
OF THE
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MANTEL IN DINING ROOM OF JAMES S. LA PRELLE'S RESIDENCE, ST. LOUIS, MO.
H. F. Roach, Architect, St. Louis

MANTEL IN RECEPTION ROOM OF JAMES S. LA PRELLE'S RESIDENCE, ST. LOUIS, MO.
H. F. Roach, Architect, St. Louis

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DINING ROOM IN RESIDENCE OF JAMES S. LA PRELLE, ST. LOUIS, MO.
H. F. Roach, Architect St. Louis

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EVANSTON BUILDING, MINNEAPOLIS, MINN.
Earnest Kennedy, Architect, Minneapolis

C. F. Haglin, Contractor

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

RESIDENCE OF JOHN H. DORNER–LOWERY HILL–MINNEAPOLIS, MINN.
Lowell A. Lamoreaux, Architect, Minneapolis

LIBRARY OF THE UNIVERSITY OF ILLINOIS

ment. English architects are surprised to find how large a share of important work in the offices of New York architects is left in the hands of so-called draughtsmen. These are often carefully educated young architects who hope sooner or later to set up independently or get into some established firm as junior partners. In some cases a draughtsman develops into a sort of managing clerk, just as some law clerks become the executive officers of important law firms.

Other draughtsmen are prized for the taste and skill in decorative design. Such men are sometimes employed to do a large part of a competitive design submitted for important buildings, public or private. However little the employing architect may have advised in this work, he and not the designer gets the credit, and the prize, if it is successful. New York has few such architects as have attracted special attention in England by methods unusual in this country. The English architects in question are men who work largely alone, having no partners and employing few draughtsmen. They do not seek to create a great business, but are content to build comparatively few houses. They do, however, place their individual mark, not only upon the general design of the houses they build, but upon every detail. This method of work makes it impossible that they should entrust to hired draughtsmen a great variety of details such as in this country is done by draughtsmen.

This architect works almost purely as an artist, with jealous care that nothing shall go out from his office that he is not ready to father in all its important details. Such architects do not earn great incomes, for the comparatively small volume of the business makes that impossible; but their fees for individual houses are relatively large, and only the well-to-do can employ them. Their work is known all over the British Isles and even in this country. The few American architects who work in this fashion attract less attention than like men in England.—Exchange.

STRIKES IN RUSSIA.

When strikes occur there is no delay in dealing with them. Troops are mobilized at once. The printers in Moscow, for example, struck last autumn. The strikers marched in procession along a few streets, clamoring for shorter hours. They complained that they had been compelled to work overtime, and that no compensation had been given for the extra labor. General Trepor, chief of police, issued a notice that any man refusing to return to work would be excluded forever from Moscow. This stopped the movement. Such notices have stopped similar movements elsewhere.—The World's Work.

ONE PHASE OF LABOR UNIONS.

When he reached home he drew a large roll of notes from his pocket and tossed it over to his wife.

"Better go shopping," he said. "Get some of the things that we thought we could not afford."

"Where did you get the money?" she inquired.

"I drew it from the savings bank," he replied. "There's no use trying to save anything now."

"Why not?" she asked.

"I've joined the union," he explained.

"Joined the union!" she cried.

"Yes; I had to do it, so we'll have to spend this money in a hurry if we don't want to get the worst of it."

"Why?" she persisted.

"Oh, I'll be on strikes of one kind or another most of the time now," he said, "and when I'm not striking I'll be paying strike benefits. The money is bound to go, and I want to be in a position to get as much out of the union as anyone. If I have money in the bank there will be no strike benefits for me when I'm ordered to quit work. 'You don't need it,' they'd say, 'for you've got money. We can only afford to make payments to those who haven't any.' You see, there's a penalty put on thrift and a premium on thriftlessness. The man who saves has to pay himself for the time lost at the order of the union, and the man who doesn't save gets the help. In a year from now our money will be gone anyhow, so we might as well spend it while we can get some personal advantage out of it and then come in on even terms with the others for the strike benefits. It's the man who hasn't anything and never expects to have anything who gets the advantage. Take the money, Maggie, before it gets beyond reach. You helped to save it and the union will only help us spend it if you don't do it first."—Daily Press.

NO TIME FOR FOOLS.

When George Westinghouse, as a young inventor, was trying to interest capitalists in his automatic brake, the device which now plays so important a part in the operation of railroad trains, he wrote a letter to Commodore Cornelius Vanderbilt, president of the New York Central Railroad Company, carefully explaining the details of the invention. Very promptly his letter came back to him, indorsed in big, scrawling letters, in the hand of Cornelius Vanderbilt —"I have no time to waste on fools."

Afterwards, when the Pennsylvania railroad had taken up the automatic brake and it was proving very successful, Commodore Vanderbilt sent young Mr. Westinghouse a request to call on him. The inventor returned the letter, indorsed on the bottom as follows: "I have no time to waste on fools."—Success.

VARNISH: ITS DEVELOPMENT, MANUFACTURE AND USES.

By Ira J. Ackerman, Chemist.

With PRATT & LAMBERT.

The manufacture of varnish, as it appears on the market today, is not the result of any one experiment, but represents the continual development and evolution of at least twenty-three centuries. It is, therefore, one of the oldest of the world's manufactures, and the making of varnish today gives employment to a great many men, to say naught of the painters and finishers who spread the varnish for the double purpose of protection and beautification.

For the derivation of the name, and much of the early history, I am indebted to Mr. Robert Ingham Clark, well known in this country and Europe for his profound scientific knowledge of all the materials used in our business. Mr. Clark says that the etymology of the word varnish is rather involved and obscure; some claiming it from the Latin "vitrinire," to glaze, and "vitrum," meaning glass. Mr. Clark, however, inclines to the belief that, although the derivation is Latin, the root is "vernus ros," signifying the vernal dew; hence, the French "vernis" and the easy transition into the Anglo-Saxon varnish.

By varnish, we understand any liquid which, when flowed or brushed over a solid body, imparts brilliancy and lustre by the combined optical effect of reflection and refraction.

It must not be inferred from this that the sole function of varnish is to beautify; on the contrary, many varnishes are made with comparatively little regard to their lustre, as compared with the care that is taken to make them durable.

Leaving out of consideration the pre-Christian use of prepared resins and balsams in the mortual wrappings of the Egyptian mummies, found in the pyramids at Thebes and elsewhere, the first use of a varnish of which the date can be fixed with any degree of certainty is about 350 B. C. by Appeles. Pliny, the great historian, tells us that Appeles was a famous artist of ancient time who did not belong to either of the four great schools of the time (Sicyon, Corinth, Athens and Rhodes), but combined the excellent coloring of the Ionian with the accurate drawing of the Sicyonic school, and that some of his paintings were hung in the great Temple erected to Diana at Ephesus. From the chronicles which have come down to us we can appreciate the reverence which was paid to the pagan deities, and the Ephesian temple to Diana was known throughout the length of the land for its magnificence and the excellence of its works of art.

Pliny states in this connection that Appeles invented a varnish the composition of which was secret and known only to himself. Thus we see that varnish was known and used successfully at least 2,250 years ago. Of the nature of this varnish we know nothing. The paintings on which it was probably used are all destroyed, and there is no means of determining the character of the varnish that Appeles used.

The essentially war-like nature of the people of his time and the almost continual international wars being waged in the interests of empire furnished no reason for the use of such a protective and beautifying coating. Therefore, though the people had in their hands for a long time the material to produce varnish, the lack of a specific object precluded its manufacture.

In time, as the ancient nations became more settled, they gave up their war-making and turned their attention to the arts of peace and industry and it was but natural that here should arise, partly from necessity, but more probably from a taste for the luxurious, a sustained demand. This was furthered by commercial intercourse and the development of varnish making was begun.

The use of lacquers in Japan was begun at a very early period (probably prior to 392 B. C.), but these must not be confounded with the varnishes already mentioned, for there is no trace of any connection whatever. These lacquers were made from the crude sap of the lacquer tree (Rhus Vernicifera) after being manipulated in various secret ways known at first only to the priests and officials of the Empire. The effect produced by the use of these lacquers is particularly beautiful and they are quite durable, though very brittle. The mode of application is very elaborate and extraordinary, involving the use of a large number of coats or applications and final polishing with some sort of oil rubbed on with the finger. The work seems to have been very expensive and only possible for the extremely wealthy.

The making of varnish as understood at present in Europe and America is of comparatively recent date, and consists in the discovery and application, practically, of certain formulæ and methods of working which every manufacturer keeps secret.

A reputation in the field of varnish making is not built in a day, but is the result of years of costly and systematic experimenting by expert men who are specially trained for the work. In addition there must be absolute uniformity in the goods turned out, and this, too, requires the application of scientific skill of the highest order.

While it is true that some firms send out varnish without careful testing, made from raw materials which are not analyzed before use, it can be readily seen that it is only by the most painstaking attention to minutæ and constant watchfulness that a perfect product is always obtained.

To do this successfully requires the installation and maintenance of large chemical and physical laboratories in connection with the works. All raw material entering into the manufacture must be carefully analyzed before use in order to be certain that a high standard of purity is always maintained.

Fine varnishes must be stored and aged for a long time after making, and must be watched and tested from time to time, at all the different stages before it is finally allowed to be put on the market. This routine work is done in the physical laboratories, and ensures perfect control.

Another department that is only possible in the largest works is the practical finishing rooms in charge of an expert finisher, who carefully tests the varnishes as they are actually used and under the same conditions that obtain in commercial work. Here the varnishes are applied to all the various woods which are used in interior finishing, carriage, furniture and piano work and all the many ways in which varnish is used. Here also the large panels are prepared for exposure to the weather in order to determine their resistance to sun, wind and rain. Records are kept of all these series of tests and carefully filed for reference.

The manufacture of varnish is now so vast that it requires the employment of raw materials from all quarters of the globe. The fossil resins are imported in large quantities from Africa, the Philippines, South America, Java, India and Zanzibar. Before the gums are ready for use they must be carefully washed and sorted. The washing is done with common water, and removes any dirt which may be still adhering to the gum. The sorting or picking is an operation that requires skill and experience. The linseed oil used in the best grades of varnish comes from Calcutta, India, and is known as Calcutta oil; while that in the cheaper grades comes mainly from the Northwestern agricultural frontier in America. Turpentine, used extensively as a solvent or thinner, is extracted from the sap of the long leaf southern pine, of which there are extensive forests in the southwestern part of the United States.

The general method of manufacture is to melt the proper resin, or gum, as we term it in the factory, carrying the destructive distillation to a certain point which is only known after long experience, adding a certain amount of prepared linseed oil and then thinning with the proper solvent.

These prepared oils are all made from special linseed oil by adding differing amounts of so-called "driers" and cooking or digesting at different temperatures for different lengths of time. The driers used vary with different varnishes and are principally compounds of lead and manganese.

The function of the turpentine is to reduce the varnish to a body or consistency that will admit of easy application and also to facilitate the drying on account of the thinner film.

As has already been stated, it must not be considered that varnish is used solely in order that material treated with it may have a high lustre and look well. The uses of varnishes are many and various. New uses are being evolved constantly, and it is impossible, within the scope of this article, to touch on more than a few of the more important.

Perhaps the most important feature of varnish is applied strictly to interior finish. Next to the beauty that it adds is the influence on public hygiene. The use of the modern floor varnish and wood preservative is not only convenient and easy, but offers the most resistance to the lodgment of toxic germs. So important has this feature of an antiseptic condition become that nearly all the large hospitals and public buildings require that the walls and floors be finished with a varnish surface of some sort.

A good varnish is very adaptable, for by its use in connection with the proper stains any of the cheaper and more abundant woods may be finished by the skillful mechanic in almost perfect imitation of any hardwood. This important feature brings the use of mahogany, cherry, black walnut, and Flemish, English, light and dark oak, besides many other costly woods within the reach of all.

Spirit varnishes which dry quickly are made from alcohol and a suitable gum. These comprise principally shellacs and are valuable as first coaters, and to prevent sap and resin from coming through the subsequent coats of varnish.

Varnishes are used for a multitude of purposes. There are almost an endless variety of interior finishes; varnishes for fine carriages, railway coaches, furniture, and for all kinds of exterior work, both on land and water. Then there are varnishes which may be rubbed to a dull finish or polished for a very bright surface.

Each of the varnishes enumerated has its own distinct method of manufacture, which is the result of long experience and careful testing.

The making of varnish as conducted by the large varnish manufacturers is a scientific operation requiring skill and thoroughness. Not only must the actual operations of making be conducted uniformly and exactly, but the endless testing requires the use of methods which are original and unique. It is only by unceasing watchfulness that the successful varnish business is conducted.

Everyday stories of modern mechanical triumphs are calculated to drives tales of old magic from the lay mind. The reported mechanical feat of running a motor cycle for fifty-five miles on city streets with the expenditure of one quart of gasoline appeals to the unlearned very much like getting a good deal in exchange for next to nothing. Smooth pavements were selected, with little or no grade, and as a matter of course no great speed could be made, which would leave atmospheric resistance out of the count—after all of which has been said, it is hard to see how a quart of gasoline can do the work. The mechanical expert may be able to figure out how a well equipped railway can move a given load a longer distance with a less expenditure of fuel—making this performance of the motor cycle take second place in the comparison—yet he will hardly make the performance of the freight train appear so startling as the other to the novice.

BASILICAN ARCHITECTURE IN THE UNITED STATES.

While many Americans are preparing to flit abroad in search of the novel and inspiring in artistic structures and scenery, it is timely to call attention to a gem of ecclesiastical architecture long overlooked in the slums of Philadelphia. It is a Protestant Episcopal church, known as the Church of the Evangelists, and is said to be the only specimen of Basilican architecture in the United States. One might pass the exterior a hundred times without a thought of the wonders hidden behind the plain doorway. Once inside the entrance, however, and the visitor stands spellbound, for here, in the slums of an American city, is an edifice that suggests the ecclesiastical glories of an English cathedral. Almost every part of the exterior is an exact reproduction of some famous church abroad. A row of pillars stands at either side of the nave of the church. Each row supports a high wall by means of a semicircular arch. These walls rise to the roof, which was built over them.

On entering the church an observer, with eyes untrained to interior architectural perspective might at first think the area rather small, seemingly a miniature of that in some famous edifice; then he would face the rood screen, which separates the choir sanctuary from the nave, and here he would catch a glimpse of the altar and mural paintings and a high reredos. On either side are the Chapel of the Holy Scriptures and the Lady Chapel, the latter having a smaller altar.

Facing the sanctuary are interesting studies on the rood screen, which is after one in St. Mark's, Venice, with the figures of six saints on top. The screen supports a large cross. Frescoes on the high sanctuary wall picture the life of our Lord. The choir and altar place take up precisely one-third the length of the church proper. The seats of the choir, in heavy oak, have misericords, or miserères—curious little shelf-like seats under the seats proper. These were introduced in the early Middle Ages for the monks to half sit, half lean upon during the long recitations. In the Church of the Evangelists alone are they to be found in a Protestant church in all this country, it is said.

In a corner near the altar hangs a beautifully made icon, under the steady, soft light of a hanging lamp. Above and back of the altar rises a carved and gilded reredos, an exact copy of that painted in 1527 by Carlo Crevelli, now in the National Gallery, London. Here and there on the columns in the nave hang icons and richly executed crucifixes and examples of Robbia or Della Robbia ware. The church has a dozen specimens made by Cantagalli, the prevailing colors being blue and white. They were imported from Florence. Icons in the Church of the Evangelists are of gold and silver, with a miniature painting behind the metal, and are flat, about 10 inches square and set in frames. Similar to these were the icons the Puritans broke in the eighth century during the iconoclastic controversy. The Church of the Evangelists is said to be the only Episcopal church in America which has images with candles burning before them and icons with lamps.

The pulpit in this church, of various marbles, reminds one of that in the Ravenna Cathedral. The treasures of the church include numerous richly-jeweled crucifixes, a number of volumes of which the covers are thickly besprinkled with diamonds, rubies, pearls, emeralds, opals and other gems set in filigree work; the vestments and altar cloths are of rich material, gleaming with jewels.

Over the entrance door is hung a picture of King Charles I that has an interesting history. It depicts the monarch with a halo, he having lost his head, as some believe, for the good of the church. The painting was one of two made by the direction of Queen Victoria. One was sent to this country as a present to the King Charles Society and eventually found its way to the Church of the Evangelists.

The rector of the church, the Rev. Charles W. Robinson, when asked to write something about the edifice, penned the following:

"You ask why the Church of the Evangelists is not better known and more appreciated. 'A prophet is not without honor save in his own country.' This church is probably better known in England than it is here in Philadelphia. When the new edifice was commenced it was surrounded by houses occupied by some of the best people in the city, but long before the present elaborate decoration of the interior was even started the neighborhood had changed, and we are now surrounded by 50,000 Italians. To reach the church one has to pass through this foreign district, which some persons imagine to be unpleasant and even not secure. But this is an entirely erroneous idea.

"Again, as a rule, American people are not very keen after art for art's sake. We have, of course, many individual and notable exceptions, but the people in general have a slight appreciation of art. The distinction between ourselves and foreigners in this respect is marked. An American comes in and admires what he imagines costs a good sum, and no doubt if each article were labeled as costing a fabulous price, or were the gift of some millionaire, he would be full of admiration.

"Then the Church of the Evangelists looks like a building of the Middle Ages. It contradicts at every point the spirit of the century in church-building in America. It savors of the Dark Ages, a benighted period, which, while it gave birth to the greatest statesmen, philosophers, architects, sculptors and craftsmen, failed to produce a single man who could invent a sewing machine or trolley car. There are two ideas of a church building. Some look upon what they call their church as an auditorium; that is to say, a large hall in which the minister may be well heard when he tells God a great deal that has hap-

pened. For this purpose they believe a 'church' should be built like a theatre—for comfort and acoustics. So this, with the addition of good heating and ventilation, and seats from which the people may see everything, is the architect's chief aim.

"As an afterthought he adds what he thinks will give the building a churchly appearance. He puts pointed tops to the windows and a tower and a steeple in front, and then has the impudence to call this high-bred production a Gothic church. Now, the other and ancient idea of a church is that it is a building offered up to God, in which the Sacraments are to be administered, and especially the Holy Communion."

The Rev. Charles W. Robinson succeeded the late Dr. Henry R. Percival. It was Dr. Percival who personally superintended the reconstruction of the church in its present form. The building foundation was laid nearly 65 years ago, and the structure was rebuilt two decades ago.

VAULTS TESTED IN THE BALTIMORE FIRE.

Mr. Geo. L. Damon, in writing of the condition of vaults in the various buildings which were burned in the recent Baltimore conflagration, in the Architects and Builders' Journal, says:

"I have spent much time in the ruins minutely studying results, not only regarding vaults, but 'safes' in general. It was my privilege to personally inspect like work in Portland, Chicago and Boston, object-lessons from ruins aggregating an area of more than 650 acres, with losses upwards of $525,000,000.

"The contents of the 22 burned national and savings banks' and trust companies' vaults in Baltimore were in every instance found to be in perfect condition. A majority of the vaults were of comparatively recent construction (five being of my own fitting up). A few vaults were located in basements; others on first, and still others on second floors. In each case the fireproof protection was of surrounding walls averaging about 16 inches in thickness, built up solidly of hard brick laid in cement free of any built-in iron work strengthening. All the vaults were supported on brick foundations built up from cellar bottoms. Several of the vaults were unfavorably located, subjecting them to a degree of heat hardly imaginable. In one of the latter was found an illustration showing that at some time during its test the interior temperature had been sufficient to cause the upper portion of a candle left in the top of the safe to bend over and rest in the pan of its holder.

The contents of a large number of mercantile vaults were intact, but there were also many losses resulting from faulty and cheaply constructed doors, and in several cases where fairly good doors had not been properly secured to masonry; losses resulted also where vault doors and vault walls were so connected with the falling building walls that they fell with them.

There were no bank or mercantile vaults with fireproofing constructed of concrete, as some vaults have recently been constructed in other localities. The ruins show total destruction of plastic and coarse-mixture materials to an extent that would lead me to place unqualified reliance in no fireproof vault construction other than hard burnt brick, honestly laid in best cement. With good brick and cement furnished a mechanic there is not the possibility of improper work, as might follow in the formation of concrete. Both constructions costing practically the same, and considering the all-important fact that the only materials which resisted extreme heat were those manufactured by heat, such as brick and terra-cotta, the preference in construction is decidedly in favor of brickwork for absolute fireproof protection. Ironwork of any kind incorporated in or forming part of fireproofing structures, expanding, causes cracking and weakening of walls, vitally impairing their security in a conflagration of magnitude.

"Vaults properly constructed of brick on second and third floors, possess unquestioned security against such fires when built up on brick foundations extending from the basement, not substantially connected with the main walls of buildings and free of built-in iron work."

THE GROWING DEMAND FOR THE BEAUTIFUL.

The national talent of acquisitiveness, one of the most conspicuous products of our educational system —when directed toward the study of art—has awakened thousands of people to the appreciation of the role which art should play in life, says Charles H. Caffin, in the July World's Work. Countless homes reflect this in a greater propriety of decoration and furnishing than formerly; and, from the home, it has passed into the street. Churches, hotels, theatres, office buildings are being erected on all sides with, at least, a consideration for beauty of design and fittings. Commerce employs this element of beauty to enhance its own dignity and importance, and has discovered in it an asset not to be ignored. Even a regard for that larger element of design, which includes the planning of total effects, has begun to penetrate the public consciousness. At the Chicago Exposition it was seen how a concentration of effect and a union of similarity with difference conduced to the grandeur of the scene. And this new development of civic pride has reached right up to the top and effected a complete change in the attitude of the national government toward the erection of federal buildings. A thoroughly trained supervising architect, with a corps of first-class assistants, and the substitution of public competition for political influence, have resulted, of late years, in an extraordinary improvement in the character of these buildings. They are signal examples of the way in which the wealth and power of the country is expressing itself through artistic means.

SOME GOOD SENSE IN THIS.

What a vast amount of thinking, talking and writing has been done on the subject of labor adjustments! There are so many sides to the question, so many interests are involved, such an overwhelming number of different opinions expressed, that it is possible only to think of one phase of the question at a time to avoid being lost in the maze of confusing intricacies which present themselves to those who give the question consideration. We, in this country, have an important point to consider which does not appeal so strongly to trades in countries where work continues uninterruptedly throughout the entire year, and that is, the importance of discussing and arranging all matters connected with labor interests, etc., during the slack times of the season. It may be said that this is not possible, because if a basis of wages were struck and agreed upon, during the winter, when work, especially in connection with the building trade, is practically tied up, the power behind the workman would be weakened, but we must remember that the power would not be required if the men knew in advance just what footing they were on. There is not a contractor in the country to-day who does not believe in paying good wages to the men who show themselves capable, but how can he be expected to respond to a call for higher wages when he has already been compelled to take his work on a basis of prevailing charges? It is directly in the interest of the workman and those concerned, to foster and encourage the intentions of the understanding should exist between the contractor and the men he employs in his business before the season's work is entered upon.

In the discussion of no other question is so much bitterness engendered as in this one of wages and employer, and so much can be done in the way of removing his bitterness by arriving at an arrangement satisfactory to both parties at a season when there is time for mature and unbiased consideration. It should be the earnest endeavor of all parties concerned to foster and encourage the intentions of the building public to such an extent that there can be no obstacle in sight to the steady and unniterrupted operations during a season, which in itself is short enough for accomplishing all there is to do. It is well known that people will not build if there is any uncertainty before them. High priced materials can be faced and do not deter, because provision can be made to meet them, but if a man is confronted with the prospect of having his building, from which he probably expects to derive income, and which is already advanced in construction, stand for a length of time roofless or unplastered, he choses rather to abandon the project than engage with a proposition so full of anxieties. Now on the side of the workman can be said: First, he is entitled to wages that will enable him to meet the advanced prices of living, high rents and other increased expenses; he should receive sufficient to enable him to feel friendly to the work under his hand; he must be enabled to experience an interest in his work and demonstrate by its amount and quality that his apprehensions are at rest. Again, the workman's wage is established in the contractor's estimates, always in advance of the season's work, and if the workman himself had an opportunity of meeting with his employer and a satisfactory scale of wages were agreed upon, not only would a better feeling be promoted between them, but the public would have no cause for hesitating when considering their schemes for building investments.—The Northwest Contractor.

BEAT A BRITISH ELEVATOR.

"While on the other side this summer," said a man as he stepped out of an elevator on the ground floor of one of the tallest office buildings down town, "I had an experience that would startle any American.

"I was in Sheffield, England, visiting a friend. One day, while we were out walking, my friend said he had a little business to transact, and asked me if I would mind going along with him. I had nothing better to do, and went along.

"We stepped into an office building, which, I think, was about eight stories high. The building had an elevator, and we rode to the sixth story.

"My friend went into an office, and I told him that I would wait in a hallway until he had finished his business. When he came out I started for the door of the elevator. My companion stopped me.

" 'Here,' he said, 'that won't do. This is the way downstairs,' and he started for the stairway.

" 'What's the matter with riding down?' I asked.

" 'Oh,' he replied, 'you can't ride down. The elevator only takes you up. You've got to walk down. The elevator never stops for anyone going down.'

"It was a new one on me, and I showed my surprise. I told my friend that in America an elevator would stop on any floor for you and take you up or down, just as you wished. He seemed surprised in turn, and said that it wasn't the custom there.

" 'If you want to go to the floor above,' he said, 'the elevator will take you up, but you have got to walk down.'

" 'Well,' I said, 'we'll try it.'

"So when the elevator came up I stopped it, and we got aboard and rode to the top floor. Then we made no move to get off, and it was the elevator man's turn to be surprised. When I told him that we were going to ride down he was shocked.

"Then I told him that I was a stranger and couldn't understand why people should be carried up and not taken down. It was just as easy to take passengers down as up, I explained. He said that time was saved by not stopping for persons going down, and that anyway a man could walk down without any exertion, whereas it was not so easy walking up.

" 'How about a cripple?' I asked him.

" 'Now you are talking,' he replied. 'We'd stop for him and take him down, but the sound in legs can walk.' "

UNIFORM BUILDING LAWS.

The International Society of State and Municipal Building Commissioners was recently organized at Washington, largely through the efforts of F. W. Fitzpatrick of that city, and formerly of Minneapolis and St. Paul, who was chosen its secretary. One of the first acts of the new organization was to inaugurate a movement to secure uniform building laws. No argument is needed to establish the proposition that the absence of all semblance of uniformity in the building regulations of the different cities and States is a decidedly unfortunate condition.

In a large country like ours, variations of climate and the character of the building material most available for use may prevent the establishment of absolutely uniform laws, and the greatly disproportionate size of cities may always necessitate some variations. In this question fire protection cuts quite a large figure, and the system in use, together with its efficiency, must of necessity exert an influence upon the controlling building laws.

In these days, when construction companies and private firms are taking contracts in all parts of the country, uniform laws would prove a decided advantage. An intimate acquaintance with the practical art of building is absolutely essential for one who is to make figures as to the cost of construction, and an acquaintance with the building laws of the city where the work is to be done is likewise of vast importance. It is true that copies of building laws of any city or State can be secured, but they cannot be mastered or even fairly appreciated at a glance, and time, when a bid is to be placed, is usually of the utmost importance. From the standpoint of the contractor uniform building laws would prove of decided value, and the same will apply to those desirous of letting contracts. In other words, uniform laws would tend to decidedly broaden the field of operations, not only to the mutual advantages of both of the contracting parties, but to that of the world of construction as well, since a broader interchange of ideas and methods would thereby be secured.

Such a system would likewise prove of distinct value from an insurance standpoint, permitting a better classification and more uniform rates of premium. From a legal standpoint it would also possess advantages, giving a better standard for the measure of damages and more accurate means for determining the rulings of courts. By broadening the field of operation it would greatly facilitate the general introduction of really valuable inventions and improvements pertaining to the building trades.

Adopted at this time, when there is a strong movement in the direction of fireproof construction, uniform building laws would give it a decided impetus, thus furnishing better protection to property and human life. The new society has started a crusade that is likely to meet with favor, and deserves to be crowned with success.—Architects' and Builders' Journal.

TURPENTINE.

It appears to be certain that a fairly good and acceptable quality of turpentine is being placed upon the market from an unexpected quarter; and if the reports as to the cost of production are true there may be enough of an output from this direction in the future to make a perceptible difference in the total supply of the commodity. This turpentine is being produced by distillation from the pine stumps which have hitherto been the bane of the pioneers who are endeavoring to clear up the land for agricultural purposes. It has long since been demonstrated that the quality of the soil and the climate of northern Minnesota, Michigan and Wisconsin are altogether excellent for diversified farming and stock raising; but the opening up of farms has been much retarded because of the enormous pine stumps which exist over great areas, and are extremely difficult and expensive to remove.

The turpentine industry as a factor in the aid of agriculture must be regarded as decidedly in its infancy thus far, but if the reports of results obtained are not exaggerated to an enormous degree there are certain to be numbers of small plants established at intervals throughout the former pine belt, which may result in placing upon the market a quite large aggregate of turpentine. Naturally, too, this will accelerate the devlopment of these sections agriculturally, as it enables the impecunious settler to derive an actual profit from his stumps, in addition to preparing his land for cultivation.

The plant required for the distilling is described as being very simple, consisting of about four large tanks or boilers in which sections of stumps are placed for gradual heating. At the right temperature the turpentine in the wood flows downward into a pipe, and thence into a still. The turpentine in the wood being exhausted, the wood is then subjected to a higher temperature, which results in the extraction of the tar, which is conducted into another still. After the tar is in turn extracted the heat is further increased, and what remains of the wood is converted into charcoal.

It is said that a plant of four boilers requires only the labor of four men at low wages, and that it takes six days to make a run of twenty cords of stumps, producing more than 300 gallons of turpentine, upwards of twice as much pine tar, and five or six hundred bushels of charcoal. We are not in position to verify the figures, notwithstanding the reports made are quite definite. But it would certainly appear as though liberal discounts might be made from all figures and statements relative to plants now in operation, and still leave an excellent margin to the manufacturer. The cost of the plant is so slight that we shall undoubted hear more upon this subject before long.—Patton's Monthly.

SOME LARGE CHICAGO BUILDINGS.

The need for greater office building facilities in the congested downtown district of Chicago is being met by the construction of five large buildings which will require a vast amount of structural material. Some idea of the work involved may be gained from the statement that for four out of the five buildings the requirements are as follows: The Ryerson Building, Adams street and the Chicago River, 1,300 tons of structural steel; the Adams Building, at Adams and State streets, 2,500 tons; the Chicago Savings Bank, also known as the Otis and the Madison Building, at Madison and State streets, 1,400 tons, and the building being erected by Otto Young at the corner of Madison street and Wabash avenue, on the old St. Mary's Block, which will require 4,000 tons. The contracts for these buildings have been secured by Wells Brothers, while the George A. Fuller Company have placed the contract for 4,500 tons of structural steel for the office building to be erected by the Chicago & Northwestern Railroad at Franklin street and Jackson boulevard. Altogether these five buildings require over 13,000 tons of structural steel, besides a very large tonnage of castings and other iron and steel, and their construction is giving an impetus to the building interests of the city of Chicago that is welcome at the present period of comparative depression. —Carpentry and Building.

THE LABORING MAN'S LOT.

There is bitter complaint by the poor against the rich, and by labor against capital, says the Rev. Dr. Joseph Krauskopt, of Philadelphia. The phrase "the poor are steadily growing poorer and the rich are constantly growing richer" has become one of the glibe on the tongues of malcontents and agitators. It is true there is much poverty in our land—more than there ought to be in a land as rich as ours and among a people that counts so many multi-millionaires. Some of it is due to the oldest and most fertile source of all poverty, to idleness or intemperance or improvidence or disease, against which not even the richest land nor the highest wages are an effective remedy. Some of it no doubt is due to the rapacity of employers whose thoughts are but bent upon the largest possible profits to accrue to them from their investment, and not upon the starvation wages that fall to the lot of those that have an equal share in the production of wealth.

Yet never in the history of wage earning has the workingman received so large a return for his labor as at the present time. Never before have his working hours been so few or has his labor been so lightened by steam and electricity and mechanical contrivances. Never has his independence been so great. He is a free man in our day, often a freer man than his employer and often better paid.

With the exception of a few over-crowded and unskilled trades, the weekly wage of the average workingman suffices to provide him not only with all the necessaries, but also with some of the luxuries of life. Many a laborer enjoys comforts in these days that were denied to lords and princes not more than a century ago. It is said that some one expressed in the presence of Cobden "the hope that some day all people might become intelligent enough to read Bacon." To this Cobden replied: "I would be happy indeed if the time ever came when all the working people could eat bacon." This was said some sixty or seventy years ago. The time has surely come when the working people not only eat bacon, but also read Bacon and many another choice gustatory and literary morsel besides.

ARCHITECT, OWNER AND CONTRACTOR.

Mr. Wm. W. Emmart, writing to the Architects' and Builders' Journal of Baltimore, Md., says: With reference to your request for an expression of opinion on the practice of contractors furnishing drawings, as is now being done in some cases, more particularly large concerns, I can only say that the practice is a bad one, and in most cases detrimental to the financial interest of the owner, and in all cases to the artistic side of the question.

The architect's profession is in no way guarded by law, as is that of the lawyer or doctor, and anyone may call himself an architect, thus, there are poorly prepared men in the profession, and there may be, on the other hand, well prepared men employed by structural firms, yet this is still no reason or excuse for such methods.

The owner should in all cases when selecting an architect, assure himself of his fitness and artistic skill before giving the order to proceed.

The conscientious architect's endeavor is to secure for his client all that can be gotten for a given sum and the conditions imposed, while the attitude of the contractor is to give as little for a given sum as possible.

This is all there is to it, and means no reflection upon the honest contractor either.

Further, no one can tell, unless far better acquainted with prices for labor and materials than the average business man, whether he is getting all he can for his money, except by competitive bids from several contractors of nearly equal standing.

One of the largest buildings in the country is today, I understand, in litigation because a structural concern financed the work, supplying architect, capital, etc. Where an architect is so employed, he is not the agent of the owner but against him, and is usually not a free agent, either, as he merely makes the drawings and does not see that they are carried out.

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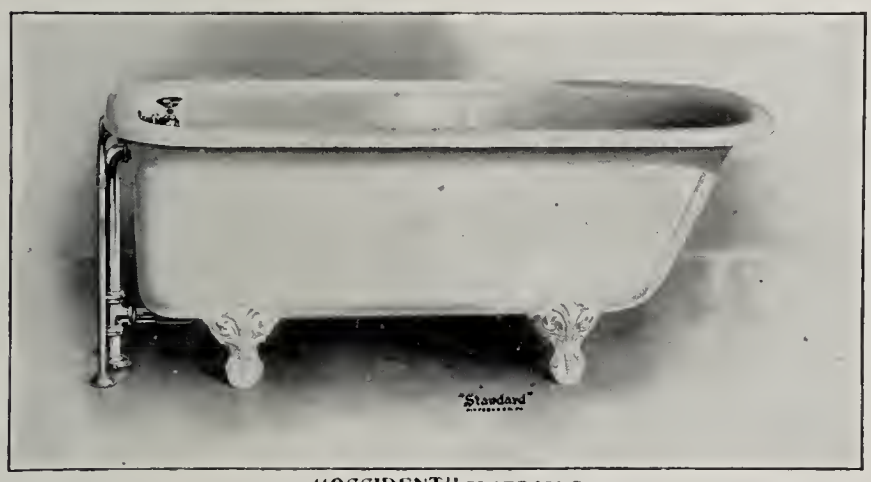

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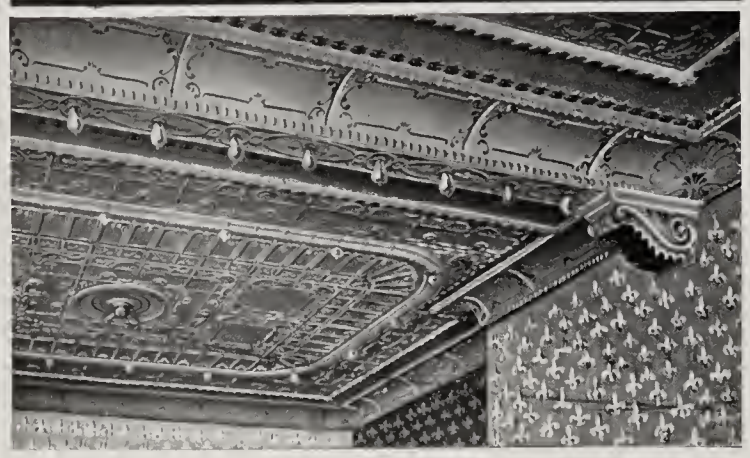

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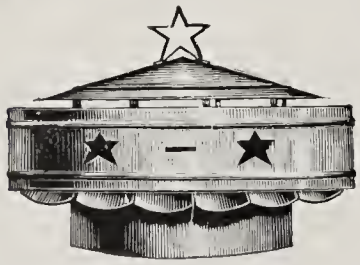

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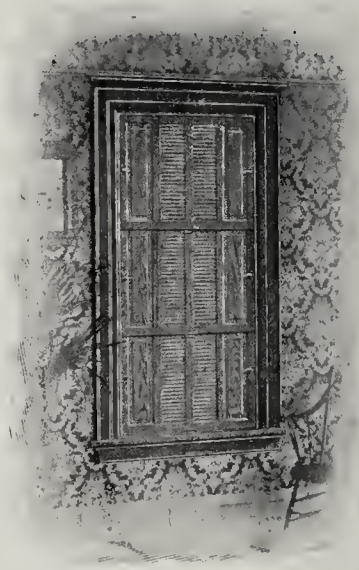

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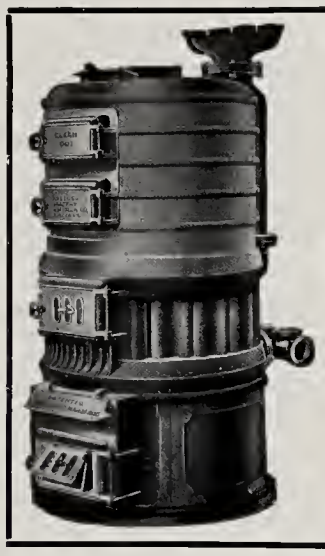

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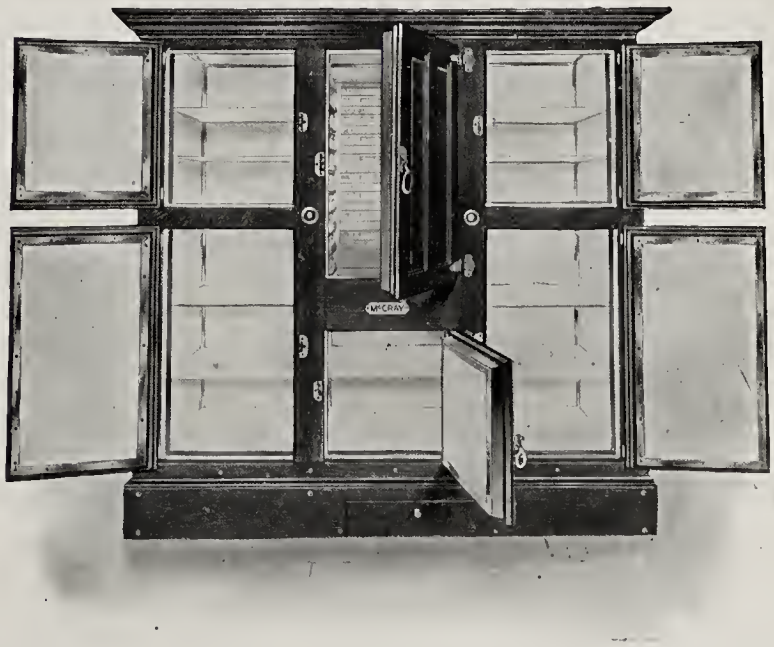

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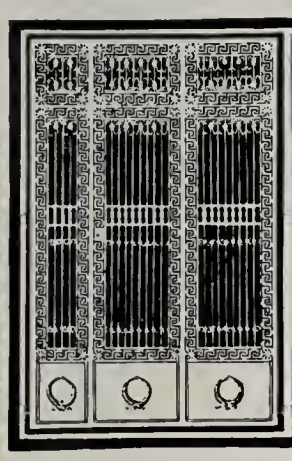

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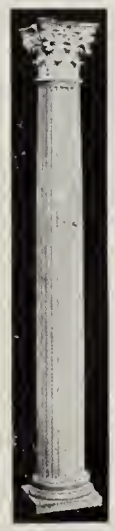

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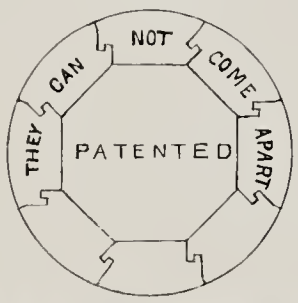

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